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Acupuncture expérimentale & système cardio-vasculaire

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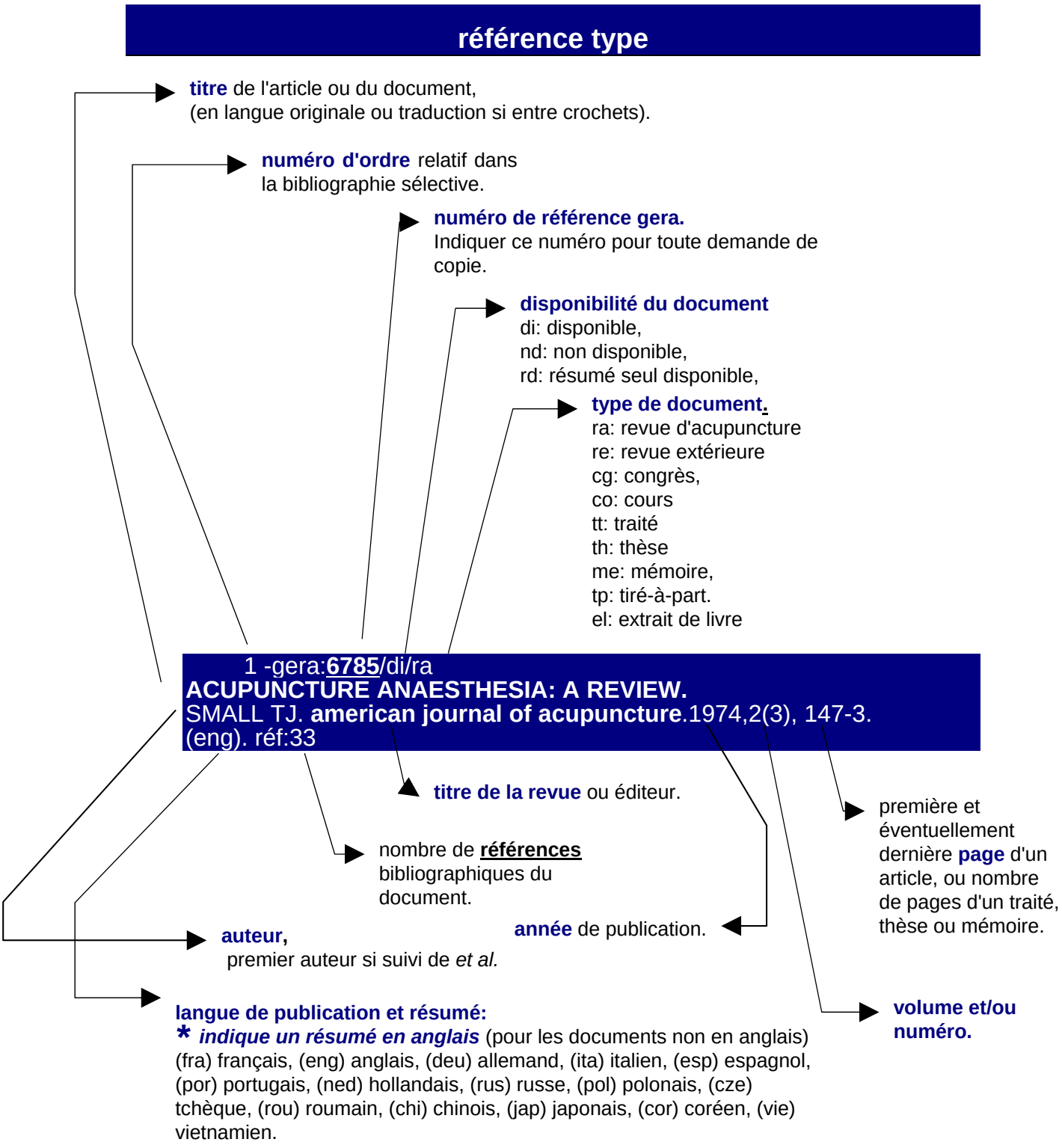

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1- gera: 17/di/re
CHANGES IN BLOOD FLOW DISTRIBUTION PRODUCED BY CENTRAL SCIATIC NERVE STIMULATION. FELL C. **american journal of physiology.** 1968;214:561-5 (eng).
The central end of a cut sciatic nerve was stimulated with strong electrical stimuli in 27 dogs anesthetized with morphine and sodium pentobarbital. In a total of 260 trials, mean arterial pressure increased an average of 15%. Flows were measured in several blood vessels with an electromagnetic flowmeter. During the maximum pressure response, mean flow changes were : aortic +23%, renal -6%, superior mesenteric- 6%, femoral 109%, common carotid +78%, "internal carotid" (ipsilateral external carotid ligated) +58%. Aortic, renal, and mesenteric flow changes were usually persistent throughout the period of stimulation. Carotid flow usually dropped significantly from its peak as stimulation was continued. Femoral flow usually showed a significant additional rise after stimulation was ended. The primary changes are compatible with the concept of an integrated response in which total flow and flows to skeletal muscle and vital organs such as the brain are increased, while resistances to flow in

2- gera: 9746/di/ra
[ETUDE SUR LE MECANISME HYPOTENSEUR DE L'ACUPUNCTURE CHEZ LE RAT]. CHIU DTJ ET AL. **american journal of chinese medicine.** 1974;2(4):413-9 (eng).
Etude de l'action de l'EAP du 40E et 36E chez le rat.

3- gera: 1133/nd/re
[MALADIES HYPERTENSIVE SECONDAIRE A LA PUNCTURE DE LA SURRENALE]. HALL CE ET AL. **federation proceeding.** 1974;3:254 (eng).
Il a été démontré que chez le rat après néphrectomie et régime hypersodé, la compression ou l'écrasement de la surrénale est tout aussi efficace que l'énucléation dans l'induction d'une hypertension. La puncture directe de la surrénale entraîne également une hypertension. 4 formes de traumatismes de la surrénale sont ainsi susceptible d'induire une hypertension, suggérant un mécanisme commun.

4- gera: 23700/di/re
HYPERTENSION IN RATS FOLLOWING MULTIPLE ACUPUNCTURE OF THE ADRENAL GLANDS. HALL CE ET ALL. **endo.** 1974;95(5):1268-74 (eng).

5- gera: 9454/di/ra
[EFFETS CARDIO-VASCULAIRES DE L'ACUPUNCTURE CHEZ LE CHIEN ANESTHESIE]. LEE DC ET AL. **american journal of chinese medicine.** 1974;2(3):271-82 (eng).

6- gera: 9456/di/ra
[EFFETS CARDIO-VASCULAIRES DE LA MOXIBUSTION DU 26VG DURANT L'ANESTHESIE A L'HALOTHANE CHEZ LE CHIEN]. LEE DC ET AL. **american journal of chinese medicine.** 1975;3(3):245-61 (eng).

7- gera: 9936/di/ra
[UTILISATION EXPERIMENTALE DE "TUNG YANG HWA YU" ET "TSU YU CHE YU" DANS LE TRAITEMENT DE L'ARTERIOSCLEROSE CHEZ LE LAPIN]. LEE HT ET AL. **chinese medical journal.** 1975;6:449-51 (eng).

8- gera: 23701/di/re
CARDIOVASCULAR EFFECTS OF ACUPUNCTURE AT TSU SAN LI (ST-36) IN DOGS. LEE M0 ET AL. **journal of surgical research.** 1975;18:51-63 (eng).
L'action du 36E sur différents paramètres cardio-vasculaires chez le chien anesthésié par l'halothane. Les auteurs déterminent en préalable la concentration minimum d'anesthésiques n'entrainant aucune variation sur les différents paramètres étudiés. L'électro-acupuncture du 36E entraine des variations statistiquement significatives sur le débit cardiaque, la pression artérielle, la pression veineuse centrale, les résistances périphériques. Les auteurs discutent ensuite les mécanismes possibles d'action de l'électropuncture sur ces différents paramètres.

9- gera: 9440/di/re
CARDIOVASCULAR EFFECTS OF ATROPINE ON ACUPUNCTURE, NEEDLING WITH ELECTROSTIMULATION, AT TSU SAN LI (ST-36) IN DOGS. CLIFFORD DH ET AL. **american journal veterinary research.** 1977;38(6):845-9 (eng).
L'électro-stimulation du 36E provoque : 1) Une diminution significative du débit cardiaque. 2) une diminution de l'amplitude des battements, 3) une élévation des résistances périphériques totales, 4) des modifications minimes de la fréquence cardiaque, de la pression artérielle moyenne, de la pression du pouls et de la pression veineuse centrale. L'atropine administrée seule ou avant l'électro-acupuncture du 36E entraine : 1) Une élévation précoce du débit cardiaque, 2) une élévation précoce de la fréquence cardiaque, 3) une élévation de la pression artérielle moyenne, 4) une diminution des résistances périphériques totales, 5) des modifications minimes de l'amplitude du battement, de la pression du pouls et de la pression veineuse centrale. On peut en conclure que l'électro-stimulation du 36E a un effet para-sympathicomimétique-like et que cet effet peut-être bloqué par

10- gera: 9461/di/re
[EFFETS DE L'ACUPUNCTURE AU POINT JENGCHUNG (26VG) SUR LA DYNAMIQUE CARDIO-VASCULAIRE DU CHIEN]. LEE DC. **canadian journal comp med.** 1977;41:446-54 (eng).
Cette expérience visait à étudier les effets cardio-vasculaires des deux variétés suivantes d'acupuncture : implantation d'aiguilles, avec tournoiement, et moxibustion à l'électrocautère, au point Jen Chung (26VG), chez des chiens auxquels on avait implanté, de façon permanente, des sondes électromagnétiques de débit, durant une anesthésie à l'halotane 0,75 % qui s'accompagnaient de l'injection intraveineuse de succinylcholine, goutte à goutte, destinée à permettre une ventilation contrôlée. Pendant une période de deux heures, on mesura le débit cardiaque, l'amplitude des battements, le rythme cardiaque, la pression artérielle moyenne, la pression du pouls, la pression veineuse centrale, la résistance périphérique totale, ainsi que le pH et les gaz du sang. Pendant et après la moxibustion à l'électrocautère, au point Jen Chung (26VG), on nota généralement une augmentation d'environ 5 % dans le débit cardiaque et l'amplitude des battements, ainsi qu'une augmentation initiale appréciable du rythme cardiaque, de la pression artérielle moyenne et de la pression du pouls. Après la moxibustion à l'électrocautère, on nota aussi une diminution appréciable de la résistance totale. Après l'implantation d'aiguilles, avec tournoiement, on nota par ailleurs une diminution initiale appréciable de la résistance périphérique totale. Au cours de cette expérience, on réalisa que la moxibustion à l'électrocautère, au point Jen Chung (26VG), produisait des changements plus appréciables de la dynamique cardio-vasculaire que ne le faisait l'implantation d'aiguilles, avec tournoiement.

11- gera: 18113/di/ra
EFFECTS OF THE THIRD (AQUEOUS) EXTRACT OF GINSENG ON THE CARDIOVASCULAR DYNAMICS OF DOGS DURING HALOTHANE ANESTHESIA. CLIFFORD DH ET AL. **comparative medicine east and west.** 1978;6(3):253-9 (eng).

12- gera: 9441/di/re
ROLE OF SOMATIC NERVES IN THE CARDIOVASCULAR RESPONSES TO STIMULATION OF AN ACUPUNCTURE POINT IN ANESTHETIZED RABBITS. KLINE RL ET AL. **experimental neurology.** 1978;61(3):561-70 (eng).
Les auteurs étudient l'action du 36E sur la pression artérielle et le rythme cardiaque, notent que l'électrostimulation de ce point n' entraine une baisse de la presion artérielle et une diminution du rythme cardiaque que si l'aiguille d'acupuncture

entre en contact avec le nerf péronéotibial. Cette réponse est supprimée par section du nerf sciatique ou par blocage chimique de la transmission nerveuse par succinylcholine ou gallemine. Les auteurs concluent à une transmission par les fibres afférentes de l'effet acupunctural du 36E.

13- gera: 9462/di/ra
[EFFETS CARDIO-VASCULAIRES DE DIVERSES FORMES DE STIMULATIONS ACUPUNCTURALES CHEZ LE CHIEN SOUS ANESTHESIE A L'HALOTHANE]. LEE DC. **american journal of acupuncture.** 1978;6(3):209-17 (eng).

14- gera: 9463/di/ra
[EFFETS CARDIO-VASCULAIRES DE LA PUNCTURE DU 3F CHEZ LE CHIEN SOUS ANESTHESIE A L'HALOTHANE]. LEE DC. **american journal of acupuncture.** 1978;6(4):297-304 (eng).

15- gera: 9465/di/ra
[COMPARAISON DES EFFETS CARDIO-VASCULAIRES DE LA STIMULATION ELECTRIQUE TRANSCUTANEE ET DE LA MOXIBUSTION CHEZ LE CHIEN DURANT *]. LEE DC ET AL. **american journal of acupuncture.** 1978;6(1):33-40 (eng).

16- gera: 18112/di/ra
EFFECTS OF THE SECOND (ETHANOL) EXTRACT OF GINSENG ON THE CARDIOVASCULAR DYNAMICS OF DOGS DURING HALOTHANE ANESTHESIA. LEE DC ET AL. **comparative medicine east and west.** 1978;6(3):247-52 (eng).

17- gera: 18119/di/ra
EFFECTS OF THE FIRST (ETHER) EXTRACT OF GINSENG ON THE CARDIOVASCULARDYNAMICS OF DOGS DURING HALOTHANE ANESTHESIA. LEE MO ET AL. **comparative medicine east and west.** 1978;6(2):115-21 (eng).

18- gera: 9767/di/ra
THE STUDY OF CONTROL THEORY OF THE EFFECT OF ACUPUNCTURE ON BLOOD PRESSURE REGULATORY SYSTEM. HUANG BINGXIAN ET AL. **british journal of acupuncture.** 1979;2(1):15. (eng).
Article expérimental étudiant l'effet de la puncture de 6MC sur le système régulateur de la TA au niveau de la carotide (glomus carotidien) chez le chien anesthésié. Les résultats montrent un effet certain de stabilisation du système, une réponse plus rapide aux stimulis. Les résultats étant objectivés par des mesures physiologiques. (Voir article original complet ref. GERA 17909).

19- gera: 9443/di/re
CAN NALOXONE INHIBIT THE CARDIOVASCULAR EFFECT OF ACUPUNCTURE. LEE DC ET AL. **canadian anaesthesists society journal.** 1979;26(5):410-4 (eng).
L'étude porte sur 40 chiens anesthésiés à l'halothane (MAC-1) porteurs de débitmètres électromagnétiques implantés dans l'aorte ascendante. Le débit cardiaque, le volume d'éjection, la fréquence cardiaque, la pression artérielle moyenne et différentielle, la tension veineuse centrale, la résistance périphérique totale ont été déterminés ainsi que la Pao2, le pH, la Paco2 et le déficit de base. La moxibustion associée à l'acupuncture obtenues par électrocautérisation du point Jen Chung 26VG a produit une augmentation significative de l'ordre de cinq pour cent de tous les paramètres vasculaires, à l'exception de la résistance périphérique totale qui a subie une baisse significative pendant la période d'observation de 120 minutes des chiens anesthésiés à l'halothane. L'acupuncture-moxibustion au point Go-26 après traitement préalable à l'antagoniste narcotique naloxone (1 mg kg-1) a été suivie d'une augmentation significative du débit cardiaque, de la fréquence, de la pression artérielle moyenne et différentielle ainsi que de la pression veineuse centrale. On en conclu que la naxolone qui inhibe les effets analgésiques de l'acupuncture, ne cause pas d'inhibition des effets sympathycomimétiques de l'acupuncture ou de la moxibustion à Jen Chung (GO-26) chez les chiens anesthésiés légèrement à l'halothane (MAC-1).

20- gera: 9468/di/ra
[EFFETS AUTONOMES DE L'ACUPUNCTURE SUR LE SYSTEME CARDIO-VASCULAIRE DES CHIENS ANESTHESIES]. LEE DC ET AL. **american journal of acupuncture.** 1979;7(2):145-50 (eng).

21- gera: 9469/di/ra
[STIMULATION TRANSCUTANEE ELECTRIQUE : COMPARAISON DES EFFETS CARDIO-VASCULAIRES AU 26VG CHEZ LE CHIEN]. LEE DC ET AL. **american journal of acupuncture.** 1979;7(3):215-22 (eng).

22- gera: 9445/nd/re
[EFFETS CARDIO-VASCULAIRES DE L'ENDORPHINE, DE LA NALOXONE ET DE LA MOXIBUSTION DU 26VG CHEZ LE CHIEN]. DEE DC ET AL. **masui.** 1980;29(10):986-92 (jap).
La naloxone n'a pas d'action sur l'effet sympathicomimétique de la moxibustion au 26VG.

23- gera: 9771/di/cg
THE STUDY OF CONTROL THEORY OF THE EFFECT OF ACUPUNCTURE ON BLOOD PRESSURE REGULATORY SYSTEM (abstract). HUANG BINGXIAN ET AL. **advances in acupuncture and acupuncture anaesthesia,beijing.** 1980;:502 (eng).
Voir article complet ref. GERA [17909].

24- gera: 9444/di/ra
[COMPARAISON DU SALICYLATE DE SODIUM, DU SULFATE DE MORPHINE ET DE L'ACUPUNCTURE AU 26VG SUR LE SYSTEME CARDIO-VASCULAIRE DU *]. LEE DC ET AL. **american journal of chinese medicine.** 1980;8(3):245-53 (eng).
Etude comparée d'un analgésique moyen, d'un opiacé et de la moxibustion du 26VG ; évaluation sur le débit cardiaque (CO), le volume éjectionnel (SV) la fréquence cardiaque (HR), la pression artérielle moyenne (MAP), la pression du pouls (PP), la pression veineuse centrale (CVP), les résistances périphériques totales (TPR), pH, PACO2 et PAO2. Après administration de salcylate de sodium on observe une élévation significative de CO, SV, PP, CVP, et une diminution significative de TPR. Après sulfate de morphine CO, HR, MAP, sont diminués alors que SV et PP sont augmentés. La moxibustion du 26VG élève CO, SV, MAP, HR, PP, et diminue TPR.

25- gera: 9476/di/ra
[EFFETS CARDIO-VASCULAIRES DE LA PUNCTURE DU 1VG CHEZ LE CHIEN]. LEE MO. **american journal of acupuncture.** 1980;8(1):31-7 (eng).

26- gera: 9586/di/cg
[OBSERVATIONS SUR LES EFFETS DE L'ACUPUNCTURE SUR L'ISCHEMIE MYOCARDIQUE AIGUE EXPERIMENTALE CHEZ LE CHIEN]. LIU RUITING ET AL. **advances in acupuncture and acupuncture anaesthesia,beijing.** 1980;:494 (eng).

27- gera: 9477/di/ra
EFFETS DE L'ACUPUNCTURE SUR LES ALTERATIONS DES RYTHMES CARDIAQUES PRODUIT AVEC L'ETILEFRINE SUR DES CHIENS. PAO CHENG NIU. **bulletin de la societe internationale medicale d'acupuncture et de stimulotherapie.** 1980;1: (fra).

28- gera: 1096/di/ra
EFFETS DE L'ACUPUNCTURE SUR L'ATHEROSCLEROSE CORONARIENNE EXPERIMENTALE. YANG YOUMI ET AL. **mensuel du medecin acupuncteur.** 1980;68:295-6 (fra).

29- gera: 9585/di/cg
[EFFETS DE L'ACUPUNCTURE SUR L'INFARCTUS AIGU DU MYOCARDE EXPERIMENTAL]. YANG YOUMI ET AL. **advances in acupuncture and acupuncture anaesthesia,beijing.** 1980;:498 (eng).

30- gera: 9588/di/cg
[EFFETS DE L'ACUPUNCTURE SUR L'ATHEROSCLEROSE EXPERIMENTALE CORONAIRE]. YANG YOUMI ET AL. **advances in acupuncture and acupuncture anaesthesia,beijing.** 1980;:501 (eng).

31- gera: 9772/di/cg
ACUPUNCTURE EFFECT ON PLASMA ANGIOTENSIN II IN DOGS. ZHU JIALONG ET AL. **advances in acupuncture and acupuncture anaesthesia,beijing.** 1980;:504 (eng).
La puncture du 36E ou du 26VG ne modifie pas la pression artérielle, mais la puncture du 36E 15mn entraîne une augmentation d'angiotensine II et le 26VG une baisse. Mais chez le chien après section du vague cervical et du sinus carotidien, le 36E entraîne une baisse de la PA avec élévation de l'angiotensine II, alors que le 26VG entraîne une élévation de la PA avec baisse de l'angiotensine II.

32- gera: 1115/di/ra
EFFECT OF ACUPUNCTURE ON ACUTE MYOCARDIAL ISCHEMIC INJURY IN RABBITS. CAO QINGSHU. **journal of traditional chinese medicine.** 1981;1(2):83 (eng*).
Une ischémie myocardique aiguë est provoquée chez le lapin par ligature de la branche ventriculaire de la coronaire gauche. La normalisation du segment ST et de l'onde T est plus rapide dans le groupe traité par acupuncture que dans le groupe de contrôle.

33- gera: 9596/di/ra
[OBSERVATIONS SUR LES EFFETS IMMEDIATS DE L'AEROSOL KUAN XIONG SUR LA CRISE ANGINEUSE]. KUO SHIKUI ET AL. **chinese journal of modern developments in traditional medicine.** 1981;1(1):9 (chi*).
Kuan Xiong, comporte Asarum Sieboldi, Alpinea Officinarum, Piper Longum Santalum Album et Dryobalanopsaromatica. L'étude sur 317 cas et 2924 crises montre un taux d'efficacité (cédation de la crise en moins de 3 minutes) de 47 à 58%. Dans 16 cas et 327 crises une comparaison a été faite avec la Nitroglycérine soit de fabrication étrangère, soit chinoise. Les taux respectifs ont été de 50, 41 et 56%. Les études expérimentales montrent que l'aérosol lève le spasme vasculaire chez le chien et le lapin.

34- gera: 9447/di/re
[RENVERSEMENT PAR ACUPUNCTURE DE LA DEPRESSION CARDIO-VASCULAIRE INDUITE PAR MORPHINE CHEZ LE CHIEN SOUS ANESTHESIE A L'HALOTHANE]. LEE DC ET AL. **canadian anaesthesists society journal.** 1981;28(2):129-35 (eng).
Les effets cardiovasculaires du sulfate de morphine et, ou de l'acupuncture électrique au point de Jen Chung (26VG, point situé entre la lèvre supérieure et la base du nez) ont fait l'objet de cette étude effectuée chez le chien. A cet effet, 35 chiens ont été anesthésiés à l'halothane à une concentration de 0,75 pour cent et maintenus sous perfusion de succinylcholine et en respiration contrôlée durant les deux heures de la procédure. Les paramètres mesurés étaient le débit et la fréquence cardiaque, le volume d'éjection, la pression artérielle moyenne et la pression différentielle, la pression veineuse centrale et la résistance périphérique ainsi que la [H+] (pH), la Paco2 la Pao2 et le "base excess". La morphine, seule, administrée en bolus intraveineuse à la dose de 0,5 mg.kg-1 produisait une diminution significative (p < 0,05) du débit cardiaque, de la fréquence cardiaque et de la pression artérielle moyenne et une augmentation significative du volume d'éjection et de la résistance périphérique totale de chiens anesthésiés à l'halothane. L'acupuncture électrique, seule, administrée durant dix minutes amenait une augmentation significative du débit cardiaque, du volume d'éjection, de la fréquence cardiaque, de la pression artérielle moyenne et de la pression différentielle avec une diminution significative de la résistance périphérique totale. L'acupuncture électrique administrée durant dix minutes au point de Jen Chung après l'administration intraveineuse de sulfate de morphine causait une augmentation significative du débit et de la fréquence cardiaque, et de la pression artérielle moyenne, avec une diminution significative de la pression veineuse centrale et de la résistance périphérique chez les chiens anesthésiés à l'halothane. Les effets dépresseurs produits par la morphine sur le débit cardiaque, la fréquence cardiaque et la pression artérielle moyenne de chiens anesthésiés à l'halothane semblent donc renversés par l'administration d'acupuncture électrique au point de Jen Chung 26VG. La stimulation de ce point d'acupuncture pourrait être utile dans la réanimation de malades au système cardiovasculaire déprimé par la morphine ou une anesthésie à l'halothane.

35- gera: 18567/di/ra
COMPARISON OF THE EFFECTS OF ACUPUNCTURE AT GOV-26 AND DIMETHYL SULFOXIDE ON THE DOG'S CARDIOVASCULAR SYSTEM. LEE DC ET AL. **american journal of acupuncture.** 1981;9(3):235-42 (eng).

36- gera: 9594/di/ra
[EFFET PROTECTEUR DE L'EXTRAIT DE CHRYSANTHEMUM INDICUM L SUR LES LESIONS CELLULAIRES DES CULTURES DE CELLULES CARDIAQUE DE RAT *]. LI YINGOU ET AL. **chinese journal of modern developments in traditional medicine.** 1981;1(2):93 (chi*).

37- gera: 9779/nd/re
[MECANISME DE L'EFFET INHIBITEUR DE L'ELECTRO-ACUPUNCTURE SUR L'HYPERTENSION INDUITE PAR NORADRENALINE]. LIN SHEXIN ET AL. **acta physiologica sinica.** 1981;33(4):235-42 (eng).
L'électro-acupuncture aux points 6MC ou 36E chez le chien n'a pas d'influence sur la tension artérielle normale, mais a une action significative sur l'hypertension induite par perfusion intraveineuse de noradrénaline, alors que fréquence cardiaque et respiratoire ne sont pas modifiées. L'injection d'atropine ne modifie pas l'effet dépresseur de l'électro-acupuncture, mais on observe une élévation du débit de l'artère mésentérique durant la phase de dépression. Ceci suggère que l'effet dépresseur de l'acupuncture est dû à une inhibition des centres vasoconstricteurs sympathiques. Cette action de l'acupuncture est bloquée par l'injection intraveineuse de naloxone (0,2mg/kg), montrant une action par l'intermédiaire des substances morphine-like endogènes.

38- gera: 1087/di/ra
EFECTOS FISIOLOGICOS DE LA ACUPUNTURA Y DROGAS ANALGESICAS EN EL SISTEMA CARDIOVASCULAR DEL PERRO. CLIFFORD DH ET AL. **revista uruguaya de acupuntura.** 1982;22:20-36 (esp).

39- gera: 1090/di/ra
[EFFETS AUTONOMES DE L'ACUPUNCTURE ET DES DROGUES ANALGESIQUES SUR LE SYSTEME CARDIO-VASCULAIRE]. DO CHIL LEE ET AL. **american journal of acupuncture.** 1982;10(1):5-30 (eng).
Les bases physiologiques de l'effet analgésique de l'acupuncture ont été éclairées par la découverte de substances morphino-mimétiques dans le cerveau, l'observation que les taux de ces subtances augmentent à la suite de l'acupuncture, et que les effets de ces substances peuvent être bloquées par la nalaxone. L'acupuncture a également des effets autonomes qui peuvent être sympatico-

mimétiques, ou parasympaticomimétiques. Le système cardiovasculaire du chien sous anesthésie légère à l'halothane a été utilisé pour démontrer l'effet sympaticomimétique de l'acupuncture au point 26VG. Cet effet peut être bloqué par le Propanolol et à un degré moindre par la Phentolamine. L'effet parasympaticomimétique du 36E est bloqué par l'atropine. Le point 9E est efficace dans les arrêts cardiaques chez le chien et le point 5GI dans les arythmies.

40- gera: 9704/di/ra
[EFFETS DE L'ACUPUNCTURE SUR LA TACHYCARDIE CHEZ LE LAPIN]. HOU ZHENGANG ET AL. **acupuncture research.** 1982;7(4):280 (chi*).
La tachycardie est induite par injection dans la veine auriculaire d'isoprotorénol. L'espace R-R de l'ECG est utilisé pour déterminer la fréquence cardiaque. Le temps de normalisation de cet espace est utilisé comme index dans un groupe de contrôle et dans un groupe sous acupuncture. Le temps de normalisation après puncture du 6MC, 7C, 2MC et 36E est significativement plus court que dans le groupe de contrôle. 6MC, 7C et 2MC sont significativement plus actifs que 36E montrant la relative spécificité de ces points.

41- gera: 1097/di/ra
[EFFETS DE L'ACUPUNCTURE SUR LE DEBIT CORONAIRE DANS L'ISCHEMIE MYOCARDIQUE EXPERIMENTALE]. MENG JING BI ET AL. **chinese acupuncture and moxibustion.** 1982;2(2):22 (chi*).
Débit coronaire et ECG sont étudiés chez 43 chiens soumis à une ischémie aiguë expérimentale. Le point Neiguan (6MC) diminue le rythme cardiaque et augmente le volume éjectionnel. L'acupuncture a un effet net

42- gera: 9707/di/ra
[EFFETS DE L'ACUPUNCTURE SUR LES TROUBLES DU RYTHME DANS LE CHOC INDUIT PAR DROGUES CHEZ L'ANIMAL]. WANG SHU YU ET AL. **acupuncture research quarterly.** 1982;22-23:51-70 (eng).

43- gera: 9787/di/ra
[ALTERATION IN PLASMA ANGIOTENSIN II CONTENTS IN THE REGULATING PROCESS OF ACUPUNCTURE ON ARTERIAL PRESSURE]. WANG TONG ET AL. **acupuncture research.** 1982;7(4):285 (chi*).
L'acupuncture a une action en clinique sur l'hypertension et l'hypotension. Etude sur 8 chiens de l'effet de l'acupuncture sur l'angiotensine Z (AT-Z) avec hypertension et hypotension expérimentale. La stimulation du nerf fémoral, l'injection d'adrénaline et la section des nerfs du sinus carotidien entraînent 3 types d'hypertension artérielle avec élévation de AT-Z. La puncture des 36E et 11GI entraîne une diminution significative de la tension et de AT-Z. L'injection intraveineuse d'acétylcholine entraîne une hypotension expérimentale avec élévation de AT-Z. La puncture des points 25VG, 26VG, et 6MC entraîne une élévation de la tension avec diminution de ATZ. Une hémorragie entraîne une hypotension avec élévation de ATZ. L'acupuncture aux mêmes points élève la tension mais ne modifie pas ATZ. L'acupuncture conserve son action sur l'hypotension ou l'hypertension après section des nerfs rénaux, ceci suggère que le système rénine-angiotensine joue un rôle important dans la

44- gera: 56/di/ra
[EFFETS DE L'ACUPUNCTURE SUR LES LESIONS MYOCARDIQUES PROVOQUEES PAR CHOC ELECTRIQUE ET ISOPRENALINE]. YANG YOUMI ET AL. **chinese acupuncture and moxibustion.** 1982;2(1):40 (chi*).
L'effet de l'acupuncture sur les lésions myocardiques aiguës provoquées par choc électrique ou injection d'isoprénaline a été observé. Les résultats montrent que l'acupuncture réduit les lésions myocardiques aiguës ; ceci est probablement lié à une augmentation du débit coronaire et à une activation fonctionnelle du cortex

45- gera: 9480/di/re
LONG-LASTING CARDIOVASCULAR DEPRESSION INDUCED BY ACUPUNCTURE-LIKE STIMULATION OF THE SCIATIC NERVE IN HYPERTENSIVE RATS. YAO T ET AL. **brain research.** 1982;240:77-85 (eng).
Etude chez des rats hypertendus (SHR) et des rats normotendus (WKR). Durant la stimulation du sciatique on observe une élévation de la tension du rythme cardiaque et de l'activité du nerf splanchnique. Après l'arrêt de la stimulation on observe une diminution et une bradycardie modérée jusqu'à la 12ème heure. L'activation des fibres du groupe III ou A-Delta est essentielle pour cette réponse post-stimulative, le maximum de cette réponse est atteint 1 heure après l'arrêt de la stimulation. Le niveau de la réponse dépend du niveau de la tension avant la stimulation. Des modifications comportementales accompagnent la dépression vasculaire. Ces deux effets sont immédiatement réversibles sous Nalaxone (10 mg/kg). La réponse persiste après dénervation sino-aortique, mais disparaît sous anesthésie à l'Uréthane et chloralose. Les stress émotionnels entraînent durant le stress une tachycardie et une réponse tensive, mais ne sont pas suivis de réponse dépressive. La longue durée de l'effet observé après stimulation des fibres afférentes somatiques et sa réversibilité par la Nalaxone suggère une

46- gera: 80035/di/re
LONG-LASTING CARDIOVASCULAR RESPONSE FOLLOWING SCIATIC STIMULATION IN SPONTANEOUSLY HYPERTENSIVE RATS. EVIDENCE FOR THE INVOLVEMENT OF CENTRAL ENDORPHIN AND SEROTONIN SYSTEMS. YAO T ET AL. **brain research.** 1982;244:295-303 (eng).
A Naloxone-reversible long-lasting depressor response induced by a prolonged low frequency stimulation of the sciatic nerve in conscious spontaneously hypertensive rats (SHRs) was reported in a previous paper. In the present study pharmacological tools were used to further investigate the neurotransmitters involved in this phenomenon. Naloxone infusion (20-25 mg/kg/h following a bolus dose of 10mg/kg i.v.) attenuated significantly the depressor response, while dexamethasone pretreatment had no such effect., suggesting an important role of the brain endorphin system, but not of the pituitary beta-endorphin, in this depressor response. Since the concomitant increase in pain threshold produced by the sciatic stimulation exhibited a different time course of development and krone reversibility, it is suggested that the depressor response and the hypalgesic effect produced by the same stimulation are fiats via different types of opiate receptors in the brain. On the other hand, PCPA abolished the post-stimulatory depressor response whereas 5-HTP and zimelidine had additive effects on the sciatic stimulation-induced depressor response, suggesting the involvement of central serotonin systems in the mechanism of the response. The interaction between the central endorphin and the serotonin systems in the mediation of the post- stimulatory depressor response is discussed.

47- gera: 9639/di/ra
[EFFETS DE L'ELECTROACUPUNCTURE DU 6MC SUR LA PO2 DE LA ZONE FRONTIERE SAIN-MYOCARDE ISCHEMIE CHEZ LE CHIEN]. CHEN LIANBI ET AL. **journal of traditional chinese medicine.** 1983;3(2):83 (eng).
L'électroacupuncture retarde la diminution de la PO2 au niveau de la zone frontière an cas de ligature coronaire. Le 36E ne montre aucun effet : le 6MC a une certaine spécificité sur l'oxygénation myocardique.

48- gera: 9486/nd/re
[EFFETS HEMODYNAMIQUES DES SAPONINES ISSUES DES RACINES, FEUILLES ET FLEURS DE SAN CHI (PANAX NOTOGINSENG) SUR LE CHIEN ANESTHESIE]. CHEN SHIME ET AL. **acta pharmaceutica sinica.** 1983;18(11):822 (chi).

49- gera: 9449/di/re
EFFECTS OF DIMETHYL SULFOXIDE AND ACUPUNCTURE ON THE CARDIOVASCULAR SYSTEM OF DOGS. CLIFFORD DH ET AL. **ann ny acad sci.**

1983;411:84-93 (eng).
DMSO et acupuncture (moxibustion au 26VG) ont un effet analgésique et stimulant sur les fonctions cardio- vasculaires comme le montre l'élévation du débit cardiaque.

50- gera: 9810/di/ra
THE EFFECT OF ACUPUNCTURE ON BLOOD PRESSURE : THE INTERRELATION OF SYMPATHETIC ACTIVITY AND ENDOGENOUS OPIOID PEPTIDES. LI PENG ET AL. **acupuncture and electrotherapeutics research.** 1983;8(1):45-56 (eng).
Experimental hypertension was produced by intravenous infusion of norepinephrine in 13 conscious dogs. Electroacupuncture at the dogs' "Tsu San-Li" (St. 36) points showed a significant decrease in blood pressure, while the heart rate was not affected. The depressor effect was naloxone (0.2 mg/kg iv) reversible, and accompanied by an increased blood flow at the mesenteric artery, so it is suggested that the depressor effect was due to inhibition of the sympathetic vasoconstrictor tone. This inhibition was mediated by endogenous opioid peptides released by acupuncture. The location of this mediation was further analyzed. The central mechanism was evidenced by the ineffectiveness of acupuncture in reducing blood pressure in anesthetized dogs. On the other hand, the demonstration of opiate receptors in the blood vessels by radio-receptor assay provided evidence of peripheral mediation of blood pressure by opioids. The blood vessel might be a target organ for the plasma opioids, which

51- gera: 9851/nd/re
ACTION OF BUFFER NERVES ON THE DEPRESSOR EFFECT OF ELECTROACUPUNCTURE ON ACUTE EXPERIMENTAL HYPERTENSION. LI PENG ET AL. **acta physiologica sinica.** 1983;35(1):72-78 (eng).
[Pas en France]. Experiments were performed in 14 conscious dogs and 7 anesthetized dogs. In conscious dogs, the depressor effect of electroacupuncture on hypertension induced by noradrenaline (NA) infusion was abolished by buffer nerve denervation. In acute experiments, intravenous infusion of NA to dogs under anesthesia and artificial respiration induced a decrease in renal nerve discharge with rise of blood pressure. Renal nerve activity recovered to about 55% of its previous value within 16 min, and at the same time COLA% of the expired gas was increased accompanying the increase of Pco2 and decrease of Po2 of arterial blood. After section of both carotid sinus nerves and aortic nerves, the inhibitory effect on renal nerve discharge was abolished. In conscious dogs, intravenous infusion of NA also induced a decrease of Po2 in arterial blood, but intravenous infusion of phenylephrine had no significant effect on Po2 of arterial blood. Electroacupuncture had no significant depressor effect on hypertension induced by phenylephrine infusion and its depressor effect on hypertension induced by NA infusion could be blocked by propranolol. On the other hand, electroacupuncture could inhibit the chemoreceptive pressor reflex induced by lobeline infusion. This inhibitory effect could be blocked by intravenous injection of naloxone. So it is suggested that NA could induce chemoreceptive pressor reflex via improving metabolism, and the depressor effect of electroacupuncture was mainly due to its inhibitory effect on the chemoreceptive pressor reflex, wich may be analogous to that of baroreflexes.

52- gera: 1113/di/ra
[EFFETS DE LA "SOLUTION PULSOGENIQUE" DANS L'INFARCTUS DU MYOCARDE AIGU CHEZ LE CHIEN]. LI RUISONG ET AL. **journal of traditional chinese medicine.** 1983;24(1):72 (chi).

53- gera: 18449/di/ra
THE ACUPUNCTURE EFFECT ON ARRHYTHMIA AND PULSUS ALTERNANS FOR DRUG-INDUCED SHOCK IN ANIMALS. SHU-YU W ET AL. **acupuncture research quarterly.** 1983;25:15-6 (eng).

54- gera: 9709/di/ra
EFECTO DE LA ACUPUNTURA EN LA ARRITMIA Y PULSO ALTERNANTE EN EL SHOCK INDUCIDO POR DROGAS EN LOS ANIMALES. WANG SHU-YU ET AL. **revista uruguaya de acupuntura.** 1983;26:20-36 (esp).
Courbes de pression artérielle et ondes du pouls sont obtenues chez le chien et le lapin par cathétérisme de l'artère brachiale et fémorale. Un état de choc est provoqué par injection de drogues. Sont étudiées les modifications de l'ECG et du pouls avant et après acupuncture (6MC, 12VC, 1Rn, 3Rn, et 8MC). Les résultats montrent que 6MC et 8MC ont le plus d'effet dans l'état de pré-choc, 12VC durant le choc et 1Rn durant l'état critique. 3 types de réponses : 1) modifications des aspects pulsologiques individuels, 2) phénomène de Bowditch et Woodworth suggérant que l'acupuncture a une action au niveau d'intervention des cations (Ca et K), sarcoplasme et mitochondries, 3) modification de l'ECG sur la durée du QRS, le segment ST et l'onde T.

55- gera: 9614/di/ra
[ETUDE HISTOCHIMIQUE SUR LES EFFETS DE L'ACUPUNCTURE DANS L'INFARCTUS DU MYOCARDE AIGU.1) MODIFICATION DU GLYCOGENE]. WEN SHEN ET AL. **chinese acupuncture and moxibustion.** 1983;5(2): (chi*).
Etude sur les modifications histochimique du glycogène et du segment ST dans l'infarctus expérimental, par ligature de la branche ventriculaire de la coronaire gauche chez 43 lapins. 4 groupes : 1) groupe normal de contrôle, 2) 10 minutes après ligature, 3) 40 minutes après levée de la ligature, 4) acupuncture. Le segment ST est élevé 10 minutes après la ligature par rapport au groupe normal avec diminution du glycogène. 40 minutes apèrs la levée de la ligature le segment ST et le glycogène tendent à redevenir normaux. Mais il y a une différence significative entre ce groupe et le groupe traité par acupuncture. L'acupuncture accélère la

56- gera: 9631/di/ra
[ETUDE HISTOCHIMIQUE DES EFFETS DE L'ELECTROACUPUNCTURE SUR L'ISCHEMIE MYOCARDIQUE EXPERIMENTALE CHEZ LE LAPIN. 2) HISTOCHIMIE DES WEN SHEN ET AL. **chinese acupuncture and moxibustion.** 1983;3(6):26 (chi*).
La lacticodeshydrogénase et la succino-deshydrogénase sont utilisées comme index, l'étude est menée 10 minutes après ligature de la coronaire droite et 40 minutes après libération de l'artère et puncture avec ou sans électrostimulation du 6MC. Les résultats sont parallèles à ceux de nos publications antérieures avec une amélioration rapide. Les modifications enzymatiques reflètent les lésions cellulaires.

57- gera: 9881/di/ra
[EFFETS DE L'INJECTION DE "COEUR CORONAIRE N°2" SUR LES TROUBLES MICROCIRCULATOIRES EXPERIMENTAUX CHEZ LA SOURIS]. WENG WEILIANG. **chinese journal of modern developments in traditional medicine.** 1983;3(3):176 (chi*).

58- gera: 9632/di/ra
[EFFETS DE L'ELECTROACUPUNCTURE SUR LES MODIFICATIONS ECG DE L'ISCHEMIE MYOCARDIQUE AIGUE CHEZ LE LAPIN]. ZHANG HONGLIN ET AL. **journal of traditional chinese medicine.** 1983;3(4):259-64 (eng).
50 lapins sont randomisés en 4 lots : Puncture du 4MC, du 21V, du 6F et groupe de contrôle. Etude des modifications ECG et influence de la puncture dans l'ischémie myocardique expérimentale. La puncture du 4MC et du 21V inhibe le développement de l'ischémie et favorise la guérison. La puncture du 6F n'a pas d'influence. Ceci met évidence la spécificité relative du point d'acupuncture.

59- gera: 9655/di/ra
[EFFET DE L'ELECTROACUPUNCTURE DU POINT QUZE (3MC) SUR L'INFARCTUS MYOCARDIQUE AIGU DU LAPIN]. CAO QINGSHU ET AL. **shanghai journal of acupuncture and moxibustion.** 1984;4:38 (chi).

60- gera: 22984/di/cg
INFLUENCE OF PHENTOLAMINE ON THE EFFECT OF ELECTRO-ACUPUNCTURE AT "NEIGUAN" POINT IN RABBITS. CAO QINGSHU ET AL. **second national symposium on acupuncture, beijing.** 1984;:501 (eng).

61- gera: 22991/di/cg
EFFECT OF ELECTRO-ACUPUNCTURE AT 'QUZE" ETC... ON ACUTE MYOCARDIAL ISCHEMIC INJURY IN RABBITS. CAO QINGSHU ET AL. **second national symposium on acupuncture, beijing.** 1984;:504 (eng).

62- gera: 22992/di/cg
EFFECT OF ELECTRO-ACUPUNCTURE ON VARIOUS PHASES OF ACUTE MYOCARDIAL ISCHEMIC INJURY IN RABBITS. CAO QINGSHU ET AL. **second national symposium on acupuncture, beijing.** 1984;:505 (eng).

63- gera: 9640/di/ra
[EFFETS DE L'EXTRAIT HYDROSOLUBLE DE SARGENTODOXA CUNEATA SUR L'ISCHEMIE MYOCARDIQUE EXPERIMENTALE CHEZ LE LAPIN]. CHEN HONGXING ET AL. **acta academiae medicinae primae shanghai.** 1984;11(3):204 (chi).
Sargentodoxa Cuneata (Huo Xue) est utilisé en MTC pour améliorer la circulation. Expérimentalement Huo Xue diminue l'élévation du segment ST et diminue la taille de l'infarctus.

64- gera: 23008/di/cg
A PRELIMINARY STUDY ON THE EFFECT OF MOXIBUSTION IN THE TREATMENT OF ACUTE MYOCARCIAC ISCHEMIA OF RABBITS. CHENG YANJIANG ET AL. **second national symposium on acupuncture, beijing.** 1984;:519 (eng).

65- gera: 23009/di/cg
EFFECT OF MOXIBUSTION ON ACUTE MYOCARDIAC ISCHEMIA IN RABBITS. CHENG YANJIANG ET AL. **second national symposium on acupuncture, beijing.** 1984;:520 (eng).

66- gera: 23007/di/cg
THE EFFECTS OF ACUPUNCTURE ON THE IVP-DP/DT VECTOR LOOP DURING EXPERIMENTAL ACUTE MYOCARDIAL ISCHEMIA IN THE RABBIT. GAO XIUZI ET AL. **second national symposium on acupuncture, beijing.** 1984;:518 (eng).

67- gera: 9498/di/ra
[EFFETS PHARMACOLOGIQUES DE L'INJECTION SHANMAIDONG (LIRIOPE SPICATA) SUR LE SYSTEME CARDIO-VASCULAIRE DE LA SOURIS]. GUI YI ET AL. **chinese traditional and herbal drugs.** 1984;15(3):21 (chi).

68- gera: 23006/di/cg
THE INFLUENCE OF PUNCTURING POINT NEIGUAN ETC. ON RABBIT WITH ACUTE MYOCARDIAL ISCHEMIC INJURY. HE ZHIMIN ET AL. **second national symposium on acupuncture, beijing.** 1984;:517 (eng).
60 rabbits were taken in our experiment. Left ventricular branches of coronary artery were ligated to cause acute myocardial ischemic injury, by means of dealing with the ECG indexes of STII and STavF potential difference and practising acupuncture. The rabbits were divided into four groups, i,e, Neiguan guoup, Zusanli graup, Xinshu group and control group (non-acupuncture). It was found that STII and STAVF potential values had no statistic significance (P>0.05). It was obvious, the myocardiac functions were fundamentally unarimour in rabbit of the four groups. Comparing ST1 and STAVF among these four groups at the moment of ligation also showed no statistic significance (P>0.05) and it seemed there was no basic difference when acute myocardial ischemic injury occurred. But when comparing STII and STAVF of the same group at the moment of ligation with that before ligation, it was found that they all had obvious statistical significance (P<0.01) and showed that ligation of left ventricular branches of coronary artery might result to significant acute myocardial ischemic injury. Comparing each group's STII and STAVF, after acupuncture with that before ligation, the potential values of points Zusanli, Xinshu and the control group were higher than that before ligation and lasted for 50 minutes, though such values kept a tendency to lower gradually and showed obvious statistical difference between them (P<0.01). It is stated that rabbits of these three groups recovered very slowly from the myocardial injury. But the potential value of point Neiguan kept an obvious tendency to run down, i,e, STII potential value after the withdrawing needles for 40 minutes and STAVF value after withdrawing needles for 20 minutes might restore to the same level as before ligation. It might be stated that acupuncture on Neiguan could promote the recovery of myocardial injury because of acute shortness of blood supply. Comparing three acupuncture groups with non-acupuncture control group showed that STII, STAVF, of Zusanli and Xinshu had no statistical significance but Neiguan had remarkable significance (P<.0.05). It may be further stated that point Neiguan may give better function for restoring the acute myocardial injury in rabbit. Our experiment has shown that there is a relative specificity between the point

69- gera: 9493/di/ra
[ACTION DE 20 TYPES DE DROGUES D'ACTIVATION DU SANG SUR L'HEMODYNAMIQUE CARDIAQUE DU CHIEN ANESTHESIE]. LI LIANDA ET AL. **shanghai journal of traditional chinese medicine.** 1984;2:4 (chi).

70- gera: 9667/di/ra
[ETUDE SUR L'AUBEPINE ET SES PRINCIPES ACTIFS. 1) EFFETS SUR L'ISCHEMIE MYOCARDIQUE ET L'HEMODYNAMIQUE CHEZ LE CHIEN]. LI LIANDA ET AL. **journal of traditional chinese medicine.** 1984;4(4):283-8 (eng).

71- gera: 9671/di/ra
[ROLE DE L'HYPOTHALAMUS DANS LE TRAITEMENT PAR ACUPUNCTURE DE L'ISCHEMIE AIGUE CHEZ LE LAPIN. 2) EFFETS DE LA STIMULATION DE L'AIRE*]. LIU JUNLING. **journal of traditional chinese medicine.** 1984;4(3):197-204 (eng).

72- gera: 22985/di/cg
EFFECT OF HYPOTHALAMUS ON THE RECOVERY OF ACUTE ISCHEMIC MYOCARDIAL INJURY PROMOTED BY ELECTROACUPUNCTURE IN RABBITS : *. LIU JUNLING ET AL. **second national symposium on acupuncture, beijing.** 1984;:502 (eng).

73- gera: 22990/di/cg
EFFECT OF HYPOTHALAMUS ON THE RECOVERY OF ACUTE ISCHEMIC MYOCARDIAL INJURY PROMOTED BY ELECTROACUPUNCTURE IN RABBITS*. LIU JUNLING ET AL. **second national symposium on acupuncture, beijing.** 1984;:503 (eng).

74- gera: 9558/di/ra
[EFFET DU 6MC SUR L'ISCHEMIE MYOCARDIQUE APRES ABLATION DU GANGLION STELLAIRE CHEZ LE CHAT]. LIU RUITING ET AL. **acupuncture research.** 1984;9(4):317 (chi*).
Etude sur 49 chats divisés en 4 groupes : 1) électroacupuncture (EA), 2) ablation du ganglion stellaire (RSG), 3) electroacupuncture et ablation du ganglion stellaire (EA+RSG), 4) contrôle. Ligature de la coronaire pendant 15 minutes puis libération de la ligature, évaluation ECG. Il

apparaît : 1) que durant la maintien de la ligature il n'y a pas de différence entre les 4 groupes, 2) qu'à la libération de la ligature la récupération est la meilleure dans le groupe EA, puis RSG, EA+RSG et enfin la moins bonne dans le groupe de contrôle. Ceci montre que l'action de l'acupuncture est inhibée après section du ganglion stellaire et suggère que les nerfs sympathiques cardiaques sont un chainon important dans la relation entre 6MC et le coeur.

75- gera: 22996/di/cg
COMPARAISON OF THE EFFETS OF ELECTRO-ACUPUNCTURE, NITROGLYCERINE, PROPRANOLOL AND PHENTOLAMINE ON ACUTE ISCHEMIC MYOCARDIUM IN DOGS. MENG JINGBI ET AL. **second national symposium on acupuncture, beijing.** 1984;:509 (eng).

76- gera: 22997/di/cg
EFFECT OF ELECTROACUPUNCTURE ON ISOVOLUMETRIC (SYSTOLE) PHASE INDICES OF MYOCARDIAL CONTRACTILITY DURING EXPERIMENTAL ACUTE MYOCAR*. MENG JINGBI ET AL. **second national symposium on acupuncture, beijing.** 1984;:509 (eng).

77- gera: 23001/di/cg
EFFECT OF ACUPUNCTURE ON HEAMODYNAMICS IN DOGS WITH EXPERIMENTAL ACUTE MYOCARDIAL ISCHEMIC INJURY. MENG JINGBI ET AL. **second national symposium on acupuncture, beijing.** 1984;:514 (eng).

78- gera: 70106/di/re
CIRCULATORY DEPRESSION FOLLOWING LOW FREQUENCY STIMULATION OF THE SCIATIC NERVE IN ANAESTHETIZED RATS. SHYU BC ET AL. **acta physiol scand.** 1984;121:97-102 (eng).
Earlier experiments have shown that afferent electrical stimulation of the sciatic nerve for 30 min induces a long-lasting post-stimulatory endorphin-dependent decrease in blood pressure in awake spontaneously hypertensive rats (SHR). In the present study we have examined whether this depressor response can be observed also in anesthetized SHR. The sciatic nerve was stimulated for 30 min with low-frequent (3 Hz) trains of impulses and the changes in blood pressure, heart rate and renal nerve activity were observed during the stimulation and in the post- stimulatory period. Animals anesthetized with Nembutal, Althesin and N2O did not show any post-stimulatory depression. In contrast, during chloralose anesthesia combined with muscle paralysis with Flaxedil, sciatic nerve stimulation induced a long-lasting post-stimulatory decrease in blood pressure due to central inhibition of sympathetic activity. The decrease in blood pressure could be prevented by naloxone and was therefore likely to

79- gera: 22974/di/cg
INFLUENCE OF ACUPUNCTURE-LIKE SOMATIC NERVE STIMULATION ON RENAL NERVE DISCHARGE UNDER DIFFERENT PHYSIOLOGICAL STATES (abstract). SU QINGFEN ET AL. **second national symposium on acupuncture, beijing.** 1984;:526 (eng).
La stimulation du peronier profond (36E) entraîne chez le chien anesthésié des effets différents en cas d'hypertension ou d'hypotension expérimentale. L'acupuncture a un effet bidirectionnel qui est bloqué par NALOXONE (effet hypotenseur) ou SCOPOLAMINE (effet hypertenseur).

80- gera: 22973/di/cg
PRESSOR EFFECT PRODUCED BY ACUPUNCTURE-LIKE STIMULATION OF SOMATIC NERVE IN HEMORRHAGIC HYPOTENSIVE RATS. SUN SIANGYING ET AL. **second national symposium on acupuncture, beijing.** 1984;:525 (eng).

81- gera: 9836/di/cg
THE ALTERATION OF PLASMA ANGIOTENSIN II CONTENTS IN THE REGULATING PROCESS OF ACUPUNCTURE ON ARTERIAL PRESSURE. WANG TONG ET AL. **second national symposium on acupuncture and moxibustion,beijing.** 1984;:527-8 (eng*).
Une HTA expérimentale avec élévation d'angiotensine II (AT II) est produite chez le chien par stimulation du nerf femoral ou injection d'adrénaline ou ablation du sinus carotidien. Dans les 3 types d'HTA, 36E ou 11GI entraîne une baisse de la TA avec baisse significative d'AT2. Le système renine angiotensine joue un rôle dans l'action hypotensive. Dans 3 types d'hypotension (acéthylcholine, choc hémorragique, et stimulation du sinus carotidien) AT2 évolue de façon variable (élévation ou diminution). L'acupuncture (6MC, 26VG et 25VG) entraîne une élévation de la TA, mais a une action variable sur AT2.

82- gera: 9565/di/cg
[ETUDE HISTOCHIMIQUE DE L'ELECTRO-ACUPUNCTURE SUR L'ISCHEMIE MYOCARDIQUE EXPERIMENTALE DU LAPIN. 1) MODIFICATION DU SEGMENT ST DE *] WEN SHEN ET AL. **second national symposium on acupuncture and moxibustion,beijing.** 1984;504:442 (eng).
Etude sur 621 patients avec coronaropathie. Points principaux : 17VC (puncture sous cutanée sur 2, 5-2, 8 cm vers le point 15VC), 36E et 6MC. Points selon la forme clinique : 5C, 11GI, 7C, 18E, 5MC et 4MC. Technique de tonification, séance de 20 mn. 2) Une amélioration est observée dans 89.2 % des cas et la trinitine a pu être arretée ou diminuée dans 93.6 %. 3) Une étude sur 100 cas montre une modification nette de l'ECG dans 30 cas, 1 à 20 mn après l'acupuncture. 4) L'étude échographique montre une amélioration significative de la fonction ventriculaire gauche. 5) Parallèlement à l'amélioration cardiaque on observe une amélioration du rhéoencéphalogramme. 6) Il y a une différence significative entre l'action des points d'acupuncture et des non-

83- gera: 9646/di/ra
[ETUDE HISTOCHIMIQUE SUR LES EFFETS DE L'ELECTROACUPUNCTURE SUR L'ISCHEMIE MYOCARDIQUE EXPERIMENTALE CHEZ LE LAPIN. 3) ETUDE DES *] WEN SHEN ET AL. **chinese acupuncture and moxibustion.** 1984;4(2):32 (chi*).
Ischémie expérimentale par ligature de la branche ventriculaire de la coronaire droite. Etude 10 mn après la ligature et 40 minutes après levée de la ligature sans acupuncture ou avec puncture du 6MC. Les études histochimiques montrent une action significative de l'électropuncture de Neiguan.

84- gera: 22980/di/cg
A HISTOCHEMICAL STUDY OF ELECTROACUPUNCTURE ON THE EXPERIMENTAL MYOCARDIAL ISCHEMIA IN RABBITS : 2) HISTOCHEMISTRY OF ENZYMES*. WEN SHEN ET AL. **second national symposium on acupuncture, beijing.** 1984;:443 (eng).

85- gera: 22981/di/cg
HISTOCHEMICAL STUDY OF ELECTROACUPUNCTURE ON THE EXPERIMENTAL MYOCARDIAL ISCHEMIA IN RABBITS : 3) OBSERVATIONS ON CATECHOLAMINE*. WEN SHEN ET AL. **second national symposium on acupuncture, beijing.** 1984;:444 (eng).

86- gera: 22979/di/cg
A HISTOCHEMICAL STUDY OF ELECTROACUPUNCTURE ON THE EXPERIMENTAL MYOCARDIAL ISCHEMIA IN RABBITS : 1) THE CHANGES OF ECG S-T SEGMENT*. WEN SHEN ETAL. **second national symposium ou acupuncture, beijing.** 1984;:442 (eng).

87- gera: 9890/da/ra

[ETUDE COMPARATIVE DE L'EFFET DE 20 PLANTES D'ACTIVATION DE LA CIRCULATION ET DE LEVEE DE STASE SUR L'OBSTRUCTION EXPERIMENTALE *]. WENG WEILIANG ET AL. **chinese journal of integrated traditional and western medicine.** 1984;4(9):555 (chi*).
Etude expérimentale sur la circulation mésentérique de la souris ; l'action des plantes est variable.

88- gera: 9648/di/ra
[EFFETS DE L'ACUPUNCTURE SUR LE DEBIT CORONAIRE DU RAT]. WU DINGZONG ET AL. **shanghai journal of acupuncture and moxibustion.** 1984;2:25 (chi).

89- gera: 22972/di/cg
PRESSOR EFFECT OF ELECTROACUPUNCTURE IN HYPOTENSIVE ANIMALS. XIAO YONGFU ET AL. **second national symposium on acupuncture, beijing.** 1984;:525 (eng).

90- gera: 20055/di/cg
MODULATION OF EXPERIMENTAL ARRHYTHMIA BY ELECTRIC NEEDLING OF POINTS "ZUSANLI", AND "NEIGUAN" IN RABBITS. XUEQIN G ET AL. **second national symposium on acupuncture and moxibustion,beijing.** 1984;:523 (eng).

91- gera: 9889/di/ra
[EFFETS DE SALVIA MILTIORRHIZA SUR LA MICROCIRCULATION MESENTERIQUE DU CHIEN MESUREE PAR DOPPLER]. YU GUORI ET AL. **chinese journal of integrated traditional and western medicine.** 1984;4(9):546 (chi*).
Salvia Miltiorrhiza a, en clinique, un effet protecteur sur l'ischémie du myocarde. L'étude expérimentale montre qu'elle accélère le débit de la microcirculation.

92- gera: 9724/di/ra
[EFFETS DE HIGENAMINE SUR LE POTENTIEL D'ACTION DES CELLULES DE PURKINJE ET DES CELLULES MYOCARDIQUES VENTRICULAIRES CHEZ LE CHIEN]. YUGUORUI ET AL. **journal of traditional chinese medicine.** 1984;4(2):133-40 (eng).

93- gera: 22993/di/cg
EFFECT OF ELECTRO-ACUPUNCTURE AT POINTS "XIMEN" ETC... ON ECG CHANGES OF ACUTE MYOCARDIAL ISCHEMIC INJURY IN RABBITS. ZHANG HONGLIN ET AL. **second national symposium on acupuncture, beijing.** 1984;:505 (eng).

94- gera: 9557/di/ra
[ETUDE SUR LA SPECIFICITE DU 6MC SUR L'ECG EPICARDIQUE DU CHIEN]. ZHOU YIPING ET AL. **acupuncture research.** 1984;9(1):34 (chi*).
Etude sur 20 chiens de l'action du 6MC et du 36E sur l'infarctus expérimental, action évaluée sur l'ECG épicardique. Le 6MC modifie de façon significative l'ECG montrant une limitation de l'extension et une diminution de la gravité de l'infarctus alors que 36E n'a pas d'action significative.

95- gera: 9808/di/el
[EFFETS IMMEDIATS SUR LA TENSION ARTERIELLE CHEZ LE LAPIN DE L'IRRADIATION PAR MICRO ONDES DE DIVERS POINTS D'ACUPUNCTURE]. ZHU WEIZHONG. **selection from shanghai jam 82-84.** 1984;:193-4 (eng).

96- gera: 9559/di/ra
[ETUDE EXPERIMENTALE SUR L'ACTION PREVENTIVE ET CURATIVE DE VISCUM COLORATUM DANS L'INFARCTUS DU MYOCARDE]. CHEN BAIHUA ET AL. **chinese journal of integrated traditional and western medicine.** 1985;5(9):565 (chi*).
Etude chez 28 lapins. Viscum coloratum modifie la consommation d'O2 au niveau de la zone nécrosée et diminue le taux de CAMP.

97- gera: 16703/di/ra
PHARMACOLOGIC STUDIES ON RADIX PUERARIAE : EFFECT OF PUERARIN ON REGIONAL MYOCARDIAL BLOOD FLOW AND CARDIAC HEMODYNAMICS IN DOGS *. FAN LL ET AL. **chinese medical journal.** 1985;98(11):821-32 (eng).

98- gera: 9555/di/ra
[EFFETS DE THYPHA ANGUSTATA SUR L'INFARCTUS DU MYOCARADE EXPERIMENTAL CHEZ LE LAPIN]. HUANG SHUYUN ET AL. **chinese journal of integrated traditional and western medicine.** 1985;5(5):297 (chi*).
En MTC thypha angustata est utilisé pour activer la circulation et lever la stase sanguine et est indiqué dans l'infarctus de myocarde. L'étude expérimentale montre une action similaire à verapammil dans la réduction de la

99- gera: 9680/di/ra
[EFFETS DE L'INJECTION DE CHOEROSPONDIAS AXILLARIS SUR L'ISCHEMIE MYOCARDIQUE AIGUE CHEZ L'ANIMAL]. LI ZENG XI ET AL. **bulletin of chinese materia medica.** 1985;10(3):42 (chi).

100- gera: 9554/di/ra
[EFFETS DE L'ELECTRO-ACUPUNCTURE SUR L'ECG EPICARDIQUE DE L'ISCHEMIE AIGUE DU MYOCARDE]. MENG JING BI ET AL. **acupuncture research.** 1985;10(1):272 (chi*).
Etude expérimentale chez le chien, étude ECG et étude histologique ; l'acupuncture réduit la taille de l'infarctus et la gravité de la nécrose.

101- gera: 9556/di/ra
[ETUDE PRELIMINAIRE SUR LA PREVENTION DES MORTS SUBITES DES AFFECTIONS CORONARIENNES PAR ACUPUNCTURE]. TANG ZHALING ET AL. **acupuncture research.** 1985;10:21 (chi*).
1) traitement de 25 cas de maladie coronaire avec 88 % de bons résultats. 2) La puncture du 6MC ou 15V améliore la fonction cardiaque. 3) Les extra-systoles provoquées chez le lapin sont inhibées par électropuncture du 6MC dans 83,3 % des cas. 4) la puncture du 6MC chez le lapin a une action contre la fibrillation ventriculaire. Ces résultat suggérent que l'électro-acupuncture a une action contre certains facteurs de risque de mort subite

102- gera: 9897/di/ra
[EFFET DE L'INJECTION QI-FU SUR L'HEMORHEOLOGIE DU LAPIN NORMAL]. TIAN FENJU ET AL. **chinese journal of integrated traditional and western medicine.** 1985;5(7):426 (chi*).
L'injection qi fu (qui a un effet protecteur sur l'infarctus expérimental du myocarde) réduit la viscosité sanguine, accélère la vitesse de circulation et améliore la micro-circulation.

103- gera: 9917/di/ra
[EFFET DE L'INJECTION QI JIA DAN SUR LES TROUBLES MICROCIRCULATOIRES APRES IRRADIATION AUX RAYONS GAMMA CHEZ LE LAPIN, *]. WANG HONG FU ET AL. **chinese journal of integrated western and traditional medicine.** 1985;5(5):295 (chi*).
Etude de la microcirculation conjonctivale après irradiations et effets de l'injection qi jia dan.

104- gera: 9733/di/ra
[EFFET INHIBITEUR D'UN EQUIVALENT DE L'ELECTROACUPUNCTURE SUR L'ARYTHMIE EXPERIMENTALE]. YING XIA ET AL. **acupuncture and electrotherapeutics research.** 1985;10(1-2):13-34 (eng).
Etude chez le lapin avec arythmie expérimentale (extrasystole ventriculaire induite par stimulation de

l'hypothalamus). Ce modèle expérimental, qui est lié à une augmentation de l'activité sympathique cardiaque est inhibé par une stimulation électrique à basse fréquence et à basse intensité du nerf péronier profond. Cet effet inhibiteur est lié aux peptides opioïdes et à la sérotonine au niveau central. Le traitement par acupuncture

105- gera: 9849/di/ra
[ELECTRO-NEEDLING AT ZUSANLI IN RABBITS ITS EFFECT ON BLOOD PRESSURE AND HEART RATE AND THE POSSIBLE MECHANISM]. ZHANG HUAXING ET AL. **acupuncture research.** 1985;4:309 (chi*).
Article expérimental étudient l'effet de l'électrostimulation du 36E chez le lapin montrant un abaissement notoire de la TA ; effet supprimé par la section du nerf sciatique, alors que la section du sinus carotidien n'influence pas la réponse. Les auteurs concluent à un effet d'inhibition sur la vascoconstriction des vaisseaux périphériques.

106- gera: 16698/di/ra
[EFFET DE L'ELECTRO-ACUPUNCTURE DU 6MC SUR LE SPASME CORONARIEN INDUIT PAR STIMULATION HYPOTHALAMIQUE CHEZ LE LAPIN]. ZHAO XUEWEN ET AL. **journal of tcm.** 1985;5(4):293-6 (eng).

107- gera: 22482/di/ra
[ROLE OF THE VENTRAL MEDULLARY AREA ON THE VENTRICULAR EXTRASYSTOLES INDUCED BY HYPOTHALAMIC STIMULATION IN THE RABBIT]. GUO XUEQIN ET AL. **acupuncture research.** 1986;11(3):174-5 (chi*).

108- gera: 19833/di/re
LONG-LASTING CARDIOVASCULAR DEPRESSION INDUCED BY ACUPUNCTURE-LIKE STIMULATION OF THE SCIATIC NERVE IN UNANAESTHETIZED RATS. EFFECTS OF AROUSAL AND TYPE OF HYPERTENSION. HOFFMANN P ET AL. **acta physiologica scandinavica.** 1986;127(1):119-26 (eng).
Prolonged low frequency stimulation of the sciatic nerve in conscious spontaneously hypertensive rats (SHR), is reported to induce a naloxone-reversible long-lasting depressor response (Yao et al. 1982). In the present study this depressor response was compared during daytime and night-time conditions to determine whether different degrees of arousal affect this response. In addition, the effect of sciatic nerve stimulation was examined in one- clip, two-kidney renal hypertensive rats (RHR); a type of secondary hypertension which lacks the central autonomic hyper-reactivity which characterizes the SHR variant of primary hypertension. A maximal fall in blood pressure of 20 mm Hg was observed 1h after sciatic nerve stimulation in SHR examined in daytime. We also found a significant bradycardia that lasted for 2.5 h. Neither poststimulatory depression nor bradycardia were observed in RHR examined at daytime. A short-lasting, nonsignificant decrease in blood pressure and heart rate was found

109- gera: 17909/di/el
STUDY OF EFFECT OF ACUPUNCTURE ON BLOOD PRESSURE REGULATORY SYSTEM (FROM THE CONTROL THEORY POINT OF VIEW). HUANG BINGXIAN ET AL. **in research on acupuncture,moxibustion and acupuncture anesthesia,beijing.** 1986;:883-91 (eng).
The results were summarized as follows : 1. This paper gives some quantitative evaluations of the effect of acupuncture on the blood pressure regulatory system. 2. Under acupuncture, the dynamic characteristics were improved on most animals. Acupuncture can increase the anti-disturbance ability of the blood pressure regulatory system, stabilize the system and speed up the response. 3. The effect of acupuncture for cases of hypotension is more prominent than that for cases of normal pressure. 4. The effects of acupuncture are probably realized by changing many of the parameters of the system. The sensitivity of baroreceptor has been changed during electro- acupuncture. It is presumed that other loops may also be affected and that, probably, the central nervous system takes an important part. 5. The phenomenon that during operation under acupuncture anesthesia the bloc pressure remains rather steady can be partly accounted for by the speediness of the responses of carotid sinus to pressure change which is so increased by acupuncture that any minute vibration caused by external stimulation may be corrected immediately. On the other hand, since the gain and the time constant are decreased and the damping

110- gera: 16712/di/ra
[EXPERIMENTAL RESEARCH ON YIN-YANG OF TCM.(V) EFFECT OF ACONITUM CARMICHAELI AND CINNAMOMUN CASSIA ON HYPERTENSIVE RATS INDUCED BY ADRENAL REGENERATION]. KUANG ANKUN ET AL. **chinese journal of integrated traditional and western medicine.** 1986;6(6):353 (chi*).

111- gera: 16713/di/ra
[RELATIONSHIP BETWEEN PRESSOR EFFECT OF ELECTROACUPUNCTURE AND FUNCTIONS OF A1, A5, AND LOCUS COERULEUS NUCLEI]. LI HUILIN ET AL. **acupuncture research.** 1986;11(1):44 (chi*).
Our experiments showed that analgesic electroacupuncture (EA : 8c/s, 3V) had a pressor effect in conscious paralysed male rats under artificial respiration. The pressor effects of "Zusanli-Sanyinjiao" and "Quchi-Neiguan" were statistically different, suggesting that the effects of different acupoints were relatively specific. There was no significant difference between effects of different EA parameters used. In further experiments, electrostimulation of A1 (or A5, locus coeruleus) or microinjection of sodium glutamate into locus coeruleus produced a marked rise in blood pressure, but the pressor effect of EA remained unchanged after bilateral lesions of At or A5 nuclei. Thus, it is likely that A1 and A5 areas do not play an important role in pressor effect of EA. On the contrary, the pressor effect of EA was abolished by bilateral lesions of locus coeruleus, indicating that locus coeruleus (A,) plays a

112- gera: 22483/di/ra
[EXPERIMENTAL STUDY OF THE EFFECT OF ELECTROACUPUNCTURE ON THE RATS WITH SLOW HEART RATE]. LIU JINLAN ET AL. **acupuncture research.** 1986;11(3):176-180 (chi*).

113- gera: 22492/di/ra
[EFFECT OF ELECTRICAL NEEDLING "NEIGUAN" POINT ON THE PROMOTION OF THE RECOVERY OF ACUTE MYOCARDIAL ISCHEMIA IN CATS : ANALYSISOF AFFERENT PATHWAYS]. LIU RUITING ET AL. **acupuncture research.** 1986;11(3):229-33 (chi).

114- gera: 20538/di/ra
[EFFECTS OF ALKALOIDS OF CORYDALIS YANHUSUO ON ECG OF RABBITS AND OBSERVATION ON TIME AND DOSE EFFECTS RELATIONSHIP]. MA SHENGXING ET AL. **chinese journal of integrated traditional and western medicine.** 1986;6(12):743 (chi*).

115- gera: 22487/di/ra
[EFFECT OF ACUPUNCTURE ON THE CORONARY COLLATERAL CIRCULATION OF DOGS SUFFERING FROM THE EXPERIMENTAL MYOCARDIAL INFARCTION]. MENG JINGBI ET AL. **acupuncture research.** 1986;11(3):196-7 (chi*).

116- gera: 23379/di/
[EFFECTS OF ALKALOIDS OF CORYDALIS DECUMBERS ON CEREBRAL AND PERIPHERAL CIRCULATION IN DOGS]. WANG DAYUAN ET AL. **chinese journal of integrated traditional and western medicine.** 1986;6(8):477 (chi*).

117- gera: 22484/di/ra
[RESETTING OF BARORECEPTOR REFLEX BY ELECTROACUPUNCTURE IN CONSCIOUS RABBITS (abstract)]. WANG WEI ET AL. **acupuncture research.** 1986;11(3):181-2 (eng*).
Experiments were carried out on 20 conscious rabbits, Phenylephrine (20µg/kg, i.v.) and sodium nitroprusside (30µg/kg, i.v.) were respectively used for changing arterial blood pressure. Arterial pressure and heart rate were recorded simultaneously. The mean arterial pressure (MAP) heart rate (HR) regression line was constructed and the effect of electroacupuncture at "Zusanli" (4 mA, 3 Hz, 0.5 ms, for 20 min) on baroreceptor reflex was observed. During electroacupuncture, no significant change in basal MAp and HR was observed but the slope of MAP-HR regression lines was steeper than that during control period, i.e, the baroreceptor reflex became more sensitive.In anesthetized animals, the compound action potentials of the sciatic nerve were recorded. Electroacupuncture of the "Zusanli" acupoint was shown to excite the group I, II and III afferent fibers in the sciatic nerve. These results suggest that etectroacupuncture results in resetting at the baroreceptor reflex via activating the somatic afferents, thus enhancing the ability of baroreflex to cortect abnormal blood pressure.

118- gera: 22475/di/ra
[EFFECT OF ELECTRO-ACUPUNCTURE ON MONOPHASIC ACTION POTENTIALS OF THE ISCHEMIC MYOCARDIUM IN RABBITS]. WEI YI ET AL. **acupuncture research.** 1986;11(2):132-42 (chi*).
Etude de l'action de l'électroacupunture du 6MC, sur une ischémie aigüe myocardique expérimentale ligature de l'IVA de la coronaire gauche) ; la mesure des potentiels d'action monophasiques myocardiques dans deux groupes randomisés montre une action certaine du 6MC sur la régulation de l'activité électrique du myocarde ischémié, une amélioration de la stabilité électrique myocardique, permettant une prévention des troubles du

119- gera: 16688/di/ra
[ELECTROCARDIOGRAM EFFECTS FOLLOWING HE-LE LASER IRRADIATION OF "NEIGUAN" IN CATS.]. ZHANG SHIYI ET AL. **acupuncture research.** 1986;11(1):60 (chi*).

120- gera: 22485/di/ra
[EFFECT OF ELECTROACUPUNCTURE ON MYOCARDIAL CONTRACTILITY IN OPEN-CHEST AND ANAETHETIZED DOGS WITH ACUTE RESPIRATORY FAILURE]. ZHU GUANGYOU ET AL. **acupuncture research.** 1986;11(3):183-90 (chi*).

121- gera: 22486/di/ra
[EFFECT OF ELECTROACUPUNCTURE ON CARDIAL HEAMODYNAMICS OF DOGS WITH ACUTE RESPIRATORY FAILURE (ARE)]. ZHU GUANGYOU ET AL. **acupuncture research.** 1986;11(3):191-5 (chi*).

122- gera: 1145/di/ra
EFFECT OF ACUPUNCTURE NEEDLE APPLICATION UPON CUTANEOUS MICROCIRCULATION OF RABBIT EAR LOBE (abstract). ITAYA K ET AL. **acupuncture and electrotherapeutics research.** 1987;12(1):45-51 (eng).

123- gera: 24416/di/ra
ACTION OF NUCLEI TRACTUS SOLITARII IN RELATIONSHIP BETWEEN NEIGUAN (P6) AND HEART. JIN YIZHONG ET AL. **international conference on tcm and pharmacology,shanghai.** 1987;:836-8 (eng).

124- gera: 21137/di/cg
EFFECTS OF MOXIBUSTION ON THE BLOOD PRESURE, PLASMA RENIN ACTIVITY AND CATECHOLAMINE CONCENTRATION IN THE TWO KIDNEY ONE CLIP GOLDBLATT HYPERTENSIVE RATS. JUN MOOLEE ET AL. **in compilation of the abstracts of acupuncture and moxibustion papers, beijing.** 1987;:163. (eng).
Le moxibustion au point 23V chez le rat rendu hypertendu par suture de l'artère rénale montre une baisse de la pression artérielle ainsi que de l'activité rénine plasmatique.

125- gera: 22275/nd/re
EFFECTS OF CHRYSANTHEMUM INDICIUM LINN ON CORONARY, VERTEBRAL, RENAL AND AORTIC BLODD FLOWS OF THE ANESTHETIZED DOG. KATO T ET AL. **archives internationales de pharmacodynamie et de therapie.** 1987;285(2):288-300 (eng).

126- gera: 23977/di/ra
[INFUENCE IN CAUSING A BLOOD PRESSURE AFTER THE STIMULATION OF AMON POINT (II)]. KEIZI IKEDA ET AL. **journal of the japan society of acupuncture.** 1987;37(1):19-23 (jap*).
Male SHR used in the study were 11 and 24 weeks old. Each age of male rats were divided in two groups, treatment group and control group, and each group consisted of 7 to 8 animals. The animal of treatment groups were given a stimulating moxibustion of the Amon point analogus to that of human to SHR. The amount of the stimulation were dosed by the moxa of 0.5 mg per 1 gram body weight in two groups. The control group was free from stimulation. More generously rise in blood pressure and the suppressed body weight gain were observed in the stimulated group of the 11 weeks after birth (T1 group). T1 group showed significantly low blood pressure compared to that of the control by five days after the stimulation. The stimulation group in 24 weeks after birth (T2 group) didn't show the remarkable changes compared to that of the control. The organ weight of the adrenal and the cerebrum were significantly high in T1 group compared to that of the control. Result of the fixed quantity to catecholamine in serum in T1 group didn't show the remarkable changes. Discussion and Conclusion : The stimulus by means of moxibustion was effective to the generously rise of blood pressure and to the suppressed body

127- gera: 21139/di/cg
THE COMBINED EFFECT OF LASER BEAM ACUPUNCTURE AND ANTIARRHYTHMIC DRUGS ON REPERFUSION ARRHYMIAS IN RATS. KHRAMOV RN ET AL. **in compilation of the abstracts of acupuncture and moxibustion papers, beijing.** 1987;:165 (eng).
La stimulation du 5GI ou de 5C par un laser basse intensité He-Ne montre une efficacité sur les trouble du rythmes (extra-systoles ventriculaires déclenchées expérimentalement chez le rat par ligature transitoire des coronaires de 5mn avec reperfusion). Les résultats obtenus sont statistiquements significatifs P<0,05. Il n'existe pas d'effet synergique entre la stimulation par laser et d'utilisation de médicaments antiarythmiques.

128- gera: 21140/di/cg
ACUPUNCTURE EFFECTS ON REPERFUSION ARRHYTHMIAS IN RATS AND RABBITS REFLEX WAY OF TRANSMISSION. KHRANOV RN ET AL. **in compilation of the abstracts of acupuncture and moxibustion papers, beijing.** 1987;:166 (eng).
L'électro-acupuncture du point yang hsi diminue de façon statistiquement significative les troubles du rythme survenant lors de la reperfusion de la coronaire gauche chez le lapin. La stimulation par laser He-Ne de ce point chez le rat a le même effet. La stimulation par laser HE-NE du point Tsian-Shin n'écourte pas les arythmies mais supprime les fibrillitions et réduit la tachycardie. Les extra-systoles ventriculaires. L'injection de peroxydax radio- active au point Yang-Hsi entraine un marquage des neurones ipsilatéraux au niveau du ganglion spinal cervical C8. Signifiant le rôle de transmission à ce niveau du signal acupunctural dans le SNC.

129- gera: 25126/di/cg
ELECTROACUPUNCTURE AT "NEIGUAN" FOR THE

EXPERIMENTAL MYOCARDIAL ISCHEMIA IN RABBITS. LAI ZHONGFANG ET AL. **selections from article abstracts on acupuncture and moxibustion, beijing.** 1987;:437 (eng).

Our previous studies indicated that preoptic-anterior hypothalamic area (PO-AH) and the nucleus tractus solitary (NTS) were the important central links on the correlation between "Neiguan" acupoint and heart. What does the amygdaloid complex (AMYG) in the direct anatomical connections with these two areas play a role in electroacupuncture (EA) at "Neiguan" for the mechanism of coronary heart disease? There is no report on it found up to date. So, according to the theory of the channel-viscera, a model of the rabbit with acute myocardial ischemia (AMI) by ligating left ventricular branch of coronary artery (LVB) was used. Effects of EA on spontaneous discharges of AMYG neurons induced by MI and MI+EA were compared and analysed in this study. Fourty-six healthy rabbits were anesthetized with a mixture of chloralose and urethan, ventilated with a respirator and immobilized with flaxedil. All animals' ECG and the rectum temperature were monitored during experiment. The spontaneous discharges of single units in AMYG (H: 13.5-15.5, A:0-1.5, R or L: 5-6 mm) were extracellularly recorded with the glass microelectrode technique. EA was applied to "Neiguan" bilaterally. The results are as follow: First: A total of 104 neurons were recorded. Their frequencies of the spontaneous discharge distributed widely (0.2-56.4 Hz), but most frequencies were lower. On the other hand, 32 neurons were continuously observed for 50 minutes at least and most neurons have the relative steady electrical activity. The fluctuation of the spontaneous discharges was less than ±20%. Second: 39 neurons in response to AMI were observed. Among them, the discharge frequency of 12 neurons increased both immediate and during ligation. Compared them with preligation, there are marked differences (P<0.01) respectively; 5 neurons had no change immediately after ligation while increased during ligation (P<0.01); 8 neurons decreased both immediate and during ligation (P<0.01); 7 neurons had no changes immediately after ligation while decreased during ligation; the other 7 neurons did not respond to AMI. Third: As EA at "Neiguan" was given, in the great majority of AMYG neurons the electrical activity changes caused by AMI could be regulated. Twenty nine of 33 neurons responded to AMI (frequency increased: 11, frequency decreased:. 18). The 11 neurons -with increased firing rate all decreased and tended to recover after EA. Of 18 neurons with decreased frequencies, 10 single units increased their discharge frequencies and maintained in a higher leve. Comparing AMI with AMI+EA, there was an obvious difference (P<0.01). Our experiment shows that some neurons in the AMYG of rabbits responded to AMI are divided into excitation and inhibition types, these changes of electrical activity could be regulated by EA. at "Neiguan", i.e. inhibiting its frequency-increasing response and activiting its frequency-decreasing response caused by AMI. This result identifies further that the AMYG can integrate and converge the information from both AMI and EA. It suggested that the AMYG played an important role in EA at "Neiguan" for AMI. At the same time, it provided a

130- gera: 25264/di/cg

EFFECT OF ELECTROACUPUNCTURE ON CORONARY ARTERIAL AND VENOUS BLOOD GASES AND MYOCARDIAL OXYGEN METABOLISM IN DOGS. MENG JINGBI ET AL. **selections from article abstracts on acupuncture and moxibustion, beijing.** 1987;:584 (eng).

131- gera: 25267/di/cg

EFFECT OF ACUPUNCTURE ON THE CORONARY COLLATERAL CIRCULATION OF DOGS SUFFERING FORM THE EXPERIMENTAL MYOCARDIAL INFARCTION. MENG JINGBI ET AL. **selections from article abstracts on acupuncture and moxibustion, beijing.** 1987;:586 (eng).

132- gera: 25269/di/cg

THE EFFECT OF EAR ACUPUNCTURE ON THE HEART INJURY CAUSED BY BAC12 IN THE RABBIT. PENG YENGAO ET AL. **selections from article abstracts on acupuncture and moxibustion, beijing.** 1987;:588 (eng).

133- gera: 20514/di/ra

EFFECTS OF SOPHORA FLAVESCENS AIT. ON HAEMODYNAMICS AND VENTRICULAR FIBRILLATION THRESHOLD IN ANAESTHETIZED DOGS. SOTER DAI ET AL. **american journal of chinese medicine.** 1987;15(1-2):53-57 (eng).

134- gera: 21138/di/cg

EFFECT OF ELECTROACUPUNCTURE ON MONOPHASIC ACTION POTENTIALIS OF THE ISCHEMIC MYOCARDIUM IN RABBITS. WEI YI ET AL. **in compilation of the abstracts of acupuncture and moxibustion papers, beijing.** 1987;:163 (eng).

135- gera: 25260/di/cg

EFFECT OF ELECTROACUPUNCTURE ON MONOPHASIC ACTION POTENTIALS OF THE ISCHEMIC MYOCARDIUM IN RABBITS. WEI YI ET AL. **selections from article abstracts on acupuncture and moxibustion, beijing.** 1987;:578 (eng).

136- gera: 19995/di/el

EFFET IMMEDIAT PAR L'IRRADIATION DE MICRO-ONDE A DIFFERENTS POINTS SUR LA TENSION ARTERIELLE DU LAPIN DOMESTIQUE. WEIZHONG C ET AL. **in selection des theses de la revue d'acupuncture de shanghai,shanghai.** 1987;:91-3 (fra).

Sur 22 lapins domestiques sains, la stimulation se fait par micro-onde, étude de la stimulation des points 20VG et 8VG, longueur d'onde = 12,24 cm, distance antenne peau 5 cm, puissance de l'appareil 60 w, puissance au point d'impact 60, 70 mW, durée 15 mn. Le paramètre observé est la tension artérielle enregistrée directement sur rouleau par une technique de perfusion. 1) Irradiation de puissance 60 W sur 20VG, essai sur 12 lapins, irradiation la TA monte doucement jusqu'à un niveau stable en moyenne : 12 mmHg. Arrêt de l'irradiation = diminution immédiate puis approche graduelle du niveau original. 2) Irradiation de puissance 60 W sur 8VC : essai sur 10 lapins, une minorité d'animaux : pas de modification. La TA en général s'abaisse doucement l'amplitude moyenne de baisse est de 21,4 mmHg. 3) Irradiation de puissance 40 w sur 20VG : essai sur 6 lapins l'augmentation de la TA est presque identique à celle obtenue par l'application 60 W : en moyenne + 17 mmHg. 4) Essai de différentes puissances sur 20VG. La valeur de l'augmentation de la tension monte au fur et à mesure

137- gera: 24417/di/ra

INHIBITORY EFFECT OF ANALOGOUS ELECTRO-ACUPUNCTURE ON INDUCED BY HYPOTHALAMIC *. XIA YING ET AL. **international conference on tcm and pharmacology,shanghai.** 1987;:839-40 (eng).

138- gera: 21043/di/ra

EFFECT OF RADIX SALVIAE MILTIORRHIZAE ON THE EXPERIMENTAL ATHEROSCLEROTIC PROCESS IN RABBITS. YU GUORUI ET AL. **journal of tcm.** 1987;7(4):297-300 (eng).

139- gera: 20201/di/ra

[EFFECTS OF GINSENOSIDES ON MYOCARDIAL LACTIC ACID, CYCLIC NUCLEOTIDES AND ULTRASTRUCTURAL MYOCARDIAL CHANGES OF ANOXIA ON MICE]. YUNXIANG F ET AL. **chinese journal of integrated traditional and western medicine.** 1987;7(6):354-6 (chi).

140- gera: 20633/di/ra

[DIHYDROXYACETOPHENONE AND

DIHYDROXYPHENYLLACTIC ACID INCREASED BLOOD FLOW IN RAT LIVER MICROCIRCULATION]. ZHANG QINGBO ET AL. **chinese journal of integrated traditional and western medecine.** 1987;7(10):608 (chi*).

141- gera: 25262/di/cg
EFFECT OF ELECTROACUPUNCTURE ON THE CONTRACTILE FORCE AND OXYGEN EXTRACTION OF MYOCARDIUM AND THEIR RELATIONSHIPS IN DOGS. ZHU GUANGYOU ET AL. **selections from article abstracts on acupuncture and moxibustion, beijing.** 1987;:581 (eng).

142- gera: 25265/di/cg
EFFECT OF ELECTROACUPUNCTURE AT "DAZHUI" ON MYOCARDIAL CONTRACTILITY IN DOGS WITH ACUTE RESPIRATORY FAILURE. ZHU GUANGYOU ET AL. **selections from article abstracts on acupuncture and moxibustion, beijing.** 1987;:585 (eng).

143- gera: 49834/di/re
CALCITONIN GENERELATED PEPTIDE (CGRP) AND TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) INCREASES CUTANEOUS BLOOD FLOW IN A MUSCULOCUTANEOUS FLAP IN THE RAT. KJARTANSSON J ET AL. **acta phys scand.** 1988;134:89-94 (eng).
The effect of blood flow on transcutaneous electrical nerve stimulation (TENS) and injection of calcitonin gene-related peptide (CGRP) was studied in a musculocutaneous flap of the rat, using laser Doppler flowmetry. The circulators border was estimated before and after treatment. It was shown that repeated treatments with TENS gradually increased the blood flow, moving the circulatory border distally more than 100% after three treatments. Injection of NaC1 into the dorsal central vein of the flap resulted in no increase in blood flow, whereas CGRP 10-10 M increased the blood flow, so that the circulatory border moved distally 70% and 60% respectively.

144- gera: 25731/di/ra
HEART RATE POWER SPECTRAL ANALYSIS DURING HOMEOSTATIC ACTION OF NEI GUAN ACUPOINT. ROLE PLAYED BY THE CARDIAL VAGUS NERVE. KONG SUMING ET AL. **journal of tcm (english edition).** 1988;8(4):271-276 (eng).

145- gera: 23341/di/ra
[THE EFFECT OF ELECTRO-ACUPUNCTURE AT BILATERAL "YIFENG" POINTS ON BLOOD PRESSURE RESPONSES IN RABBITS]. LI CHUFEN ET AL. **acupunture research.** 1988;13(2):114-8 (chi*).
Experiments were performed in adult rabbits anesthetized with urethane and immobilized with tubocurarini chloride. Given electro-acupuncture stimulation at bilateral "Yifeng" points, the animals' blood pressures showed obvious responses. The patterns of blood pressure responses can be divided into three groups : the bi-phasic type with first declining followed by ascending of blood pressure, the simple declining type and the simple ascending type. Bi-phasic type accounted for 80 percent or so. The blood pressure effects of electro-acupuncture at bilateral "Yifeng" points were not influenced by section of bilateral cervical vagus nerves, the effect of electro-stimulating the central end of cut cervical vagus nerve directly was quite similar to that of stimulating the "Yifeng" points. The results showed that the blood pressure responses of electro-acupuncture at "Yifeng" points were not resulted from the muscle tonus or the peripheral effect of vagus nerve; and it might be that the spreading of electric current perhaps influences some nerve near by, especially the vagus, and then the inflows travelling via vagus to the brain resulted in a central effect. A possible mechanism of this central effect is discussed in this paper briefly.

146- gera: 52540/di/ra
[EFFECT OF "ZHUSHE XIAOSHUAN" CAPSULE ON ACUTE MYOCARDIAL ISCHEMIA IN RABBIT]. LIU SHUWEI ET AL. **chinese traditional and herbal drugs.** 1988;19(3):25-7 (chi).

147- gera: 23744/nd/re
[ELECTROACUPUNCTURE AND ARRHYTMIA CAUSED BY REPERFUSION OF THE CORONARY ARTERIES IN RABBITS AND RATS IN HYPOTHERMIA]. SOSUNOV EA ET AL. **kardiologia.** 1988;28(2):90-2 (rus*).
La puncture de 5MC semble prévenir le syndrôme de troubles du rythme lors de reperfusion des coronaires chez le

148- gera: 51901/rd/re
[PROTECTIVE EFFECT OF SODIUM PERULATE ON DAMAGE CAUSED BY MYOCARDIAL ISCHEMIA AND REPERFUSION IN DOGS]. WANG YU DI ET AL. **national medical journal of china.** 1988;68(12):714-15 (chi*).

149- gera: 61693/rd/re
[EFFECT OF LIGUSTRAZINE AND SALVIA MILTIORRHIZA ON CALCIUM INFLUX IN ARTERIAL SMOOTH MUSCLE OF NORMAL AND HYPERTENSIVE RATS]. WEN YUN YI ET AL. **acta academiae medicinae sinicae.** 1988;10(6):420. (chi*).

150- gera: 23607/di/ra
THE INFLUENCE OF INTRAVENOUS NALOXINE ON THE BLOOD PRESSURE LOWERING EFFECT OT ELECTROACUPUNCTURE. ZHANG HUAXING ET AL. **acupuncture research.** 1988;13(1):63-6 (eng).
Twenty experiments were carried on 15 rabbits. The results showed that electro-acupuncture of Zusanli had very significant blood pressure lowering effect (P<0.01). In the control group of the 15 experiments (75% of the total) in 12 animals. But, as naloxone (1 to 1.5mg/kg), the antagonist of opiate-like substance (OLS), was given intravenously 5 minutes ahead of acupuncturing, the BP lowering effect weakened in varying degrees, showing no significant difference statically (P>0.05) in comparison with the original BP levels. In 4 animals of good status, the effects of different dosage of naloxone were compared, and found that the weakening effect was stronger with 1. 5mg/kg than 1 mg/kg . with the BP measurements after application near normal or reversed. The acupuncture effects in percentage before and after naloxone application were significantly different (P<0.01). The above results indicate that under our present experimental conditions. BP lowering effect during electro-acupuncture of Zusanli was due to the release of OLS in the animal bodies with inhibitory effect on vasotension, and dilatation of peripheral arteries resulted. In the other 4 experiments (20% of the total) in 3 animals, repeated electro acupuncture of Zusanli were applied even with voltage augmented to 8 or 9 volts, but still no significant BP lowering effect was found, and also no difference happened after naloxone application, indicating no endogenous OLS was released or no activation

151- gera: 51943/rd/re
[PREVENTION OF PULMONARY EDEMA IN RATS BY ANISODAMINE AND TETRAMETHYLPYRARINE. CHANGE OF PULMONARY VASCULAR PERMEABILITY]. DAI SHUN LING ET AL. **chinese journal of pathophysiology.** 1989;5(6):354-57 (chi*).

152- gera: 34161/di/ra
[EFFECTS OF MENBRANOUS MILKVETCH (ASTRAGALUS MEMBRANACEUS) ON SPONTANEOUSLY HYPERTENSIVE RATS (SHR)]. DAI-JUN S ET AL. **chinese traditional and herbal drugs.** 1989;20(8):25-8 (chi).

153- gera: 42637/rd/re
[EFFECTS OF DENGZHANHUA INJECTION ON HEMOSTASIS AND MYOCARDIAL ISCHEMIA IN

RABBITS]. DING YU XIONG ET AL. **zhong yi yao yan jiu.** 1989;4:39-40 (chi*).

154- gera: 35090/di/ra
[THE INFLUENCE ON THE RABBIT'S ACUTE MYOCARDIAL ISCHEMIA BY USING HE-NE LASER TO IRRIDIAT "QIE MEN" AND OTHER POINTS]. HE ZHI MING. **liaoning journal of traditional chinese medicine.** 1989;13(8):43-34 (chi).

155- gera: 27301/di/ra
[LASER EFFECT ON ACUTE ISCHEMIC MYOCARDIAL DAMAGE OF RABBITS]. HE ZHIMING ET AL. **shanghai journal of acupuncture and moxibustion.** 1989;8(3):31. (chi).

156- gera: 27226/di/re
INCREASED SURVIVAL OF ISCHAEMIC MUSCULOCUTANEOUS FLAPS IN RATS AFTER ACUPUNCTURE. JANSEN G ET AL. **acta physiol scand.** 1989;135(4):555-8 (eng).
The effets of acupuncture on survival of ischaemic musculocutaneous flaps were investigated in the rat. A dorsal cranially based standard flap (2 x 7 cm) was elevated and sutured back position. The percentage survival of the flaps was estimated after 6 days. Manual acupuncture, electro-acupuncture but not superficial acupuncture significantly increased the survival of the flaps compared to untreated controls. The highest flap survival (92%) was obtained with repeated post-operative high-intensity electro-acupuncture. It is concluded that acupuncture treatment markedly increases experimental flap survival and may be of clinical importance for treatment of local ischaemia.

157- gera: 27432/di/re
ACUPUNCTURE AND SENSORY NEUROPEPTIDES INCREASE CUTANEOUS BLOOD FLOW IN RATS. JANSEN G ET AL. **neuroscience letters.** 1989;97(3):305-9 (eng).
The effect on blood flow of electro-acupuncture (EA) injection of substance P (SP) and calcitonin generelated peptide (CGRP) was studied in musculocutaneous flaps in the rat, using laser Doppler flowmetry. The circulatory border was estimated before and after treatment. It was shown that treatment with EA increased the blood flow moving the circulatory border distally 66% after a treatment. Injection of NaC1 into the dorsal central vein of the flap resulted in no increase in blood flow whereas SP PO- 9 M and CGRP lo-9 M increased the blood flow so that the circulatory border moved distally 31% and 49%, respectively. It is suggested that the effect of EA on blood flow is similar to the effect achieved by injecting CGRP and SP.

158- gera: 51934/rd/re
[HYPOTENSIVE AND HEMODYNAMIC EFFECTS OF ISORHYNCHOPHYLLINE IN CONSCIOUS RATS AND ANESTHETIZED DOGS]. SHI JIN SHAN ET AL. **chinese journal of pharmacology and toxicology.** 1989;3(3):205-11 (chi*).

159- gera: 51938/rd/re
[EFFECT OF RHYNCHOPHYLLINE ON HEMODYNAMICS OF CONSCIOUS RATS]. SHI JING SHAN ET AL. **guizhou medical journal.** 1989;13(2):72-3 (chi*).

160- gera: 42685/rd/re
[POSITIVE INOTROPIC EFFECT OF CYCLOPROTOBUXINE-A ON ISOLATED GUINEA PIG MYOCARDIUM]. WANG YONG XIAO ET AL. **acta pharmacologica sinica.** 1989;10(6):516-19 (chi*).

161- gera: 27072/di/ra
EFFECT OF ELECTROACUPUNCTURE ON CARDIAC PUMPING FUNCTION OF CANINE WITH EXPERIMENTAL ANGINA PECTORIS. WU PEILIN ET AL. **acupuncture research.** 1989;14(1-2):190-193 (eng).

162- gera: 27450/di/ra
[LASER EFFECT ON ACUTE ISCHEMIC MYOCARDIAL DAMAGE OF RABBITS]. ZHIMING H ET AL. **shanghai journal of acupuncture and moxibustion.** 1989;8(3):31. (chi).

163- gera: 51940/nd/re
[EFFECT OF GANYANLING ON CARDIAC FUNCTION AND HEMODYNAMICS IN ANESTHETIZED DOGS]. ZHU WAN ER ET AL. **guangxi medical journal.** 1989;11(1):2-4 (chi*).

164- gera: 82305/di/cg
EFFECT OF SHENMEN (HT-7) ACUPUNCTURE ON CHANGES IN BLOOD PRESSURE AND HEART RATE BY A- AND B- AGONISTS IN THE CAT (abstract). AHN CHANG BEOHM ET AL. **2eme congres mondial d'acupuncture et moxibustion, paris.** 1990;:201. (eng).
1) Shenmen acupuncture decreased systolic pressure, and it also decreased the heart rate with a similar pattern. 2) Shenmen acupuncture attenuated decrease in blood pressure and increase in heart rate by b-agonist, isoproterenol 5g. 3) Shenmen acupuncture attenuated increase in pressure and decrease in heart rate by a- agonist, phenylephrine 30g. 4) Effect of Shenmen acupuncture on changes in blood pressure and heart rate by isoproterenol or phenylephrine was reduced in the vagotomized cat. These results suggest that the effect of Shenmen acupuncture on blood pressure and heart rate is in part mediated through the vagus nerve, and acupuncture stimulations at Shenmen can be clinically effective for the diseases rich need controlling of blood

165- gera: 81614/di/ra
[INFLUENCE OF EA ON THE ELECTRICAL CONDUCTANCE IN THE MARGINAL AREA OF THE ACUTE ISCHEMIC MYOCARDIUM IN THE RABBIT]. CAO QINGSHU ET AL. **acupuncture research.** 1990;15(4):292-96 (chi*).

166- gera: 29090/di/cg
TREATMENT OF CORONARY HEART DISEASE ARRHYTHMIA BY BONE-SETTING MANIPULATIONS AND STUDY OF ITS MECHANISM IN ANIMALS. CEN HUA LONG. **proceedings of the fifth international congress of chinese medicine,berkeley.** 1990;:88. (eng).

167- gera: 61731/rd/re
[PROTECTIVE EFFECT OF SILYBIN ON CULTURED MYOCARDIAL CELLS ON NEW BORN RAT DEPRIVED OF OXYGEN AND GLUCOSE]. CHEN HONG ET AL. **academic journal of the second military medical university.** 1990;11(2):147-149 (chi*).

168- gera: 60491/di/ra
[ULTRASTRUCTURAL STUDY ON PROTECTION ACTION OF DANGGUIBUXUE DECOCTION ON DAMAGE OF SUGAR AND OXYGEN SHORT OF CULTIVATED SUCKLING MIC]. CHEN JIA CHANG ET AL. **chinese traditional patent medicine.** 1990;12(2):25-9 (chi).

169- gera: 61733/rd/re
[COMPARISON BETWEEN THE EFFECTS ON GYPENOSIDES AND GINSENOSIDES ON CARDIAC FUNCTION AND HEMODYNAMICS IN DOGS]. CHEN LI FENG ET AL. **chinese journal of pharmacology and toxicology.** 1990;4(1):17-20 (chi*).

170- gera: 83288/di/ra
[STUDY ON THE MECHANISM OF REDUCING BLOOD PRESSURE (BP) BY ACUPUNCTURE FROM MICROCIRCULATION AND HEMORHEOLOGY]. CHEN QIONG. **traditional chinese medicinal research.** 1990;3(4):12-6 (chi*).
The effects of acupuncture on BP, microcirculation of bulbar conjunctiva and hemorheology in spontaneous hypertension rats (SHR) were observed. The results showed that BPP was reduced significantly with needling. Needling could improve abnormal state of bulbar conjunctival microcirculation and density, mucosity, aggregation of blood. It suggested that the action of reducing BP by acupuncture might be related to reduction in total peripheral resistance and restoration to hemodynamics.

171- gera: 60790/di/ra
[PRELIMINARY OBSERVATION OF THE ACTION OF NAOXUEKANG ON THE MICROCIRCULATION OF RABBIT]. LI FENGWEN ET AL. **acta medica sinica.** 1990;5(1):33-4 (chi).

172- gera: 61267/di/ra
[EFFECTS OF TETRANDRINE ON EFFECTIVE REFRACTORY PERIOD OF LEFT VENTRICULAR CELLS OF THE IN SITU HEART OF GUINEA PIGS AT SINUS RHYTHM]. LI GUOZHANG ET AL. **acta medica sinica.** 1990;5(5):28-9 (chi).

173- gera: 62263/di/ra
[ANTIARRHYTHMIC EFFECT OF ISOCORYDINE TO RABBITS]. LI LI HENG ET AL. **yunnan journal of traditional chinese medicine.** 1990;11(4):37-8 (chi).

174- gera: 61541/di/ra
[EFFECT OF HERBAL MEDICINE "JIANGZHI MIN" ON PLASMA LIPOPROTEIN SUBGROUPS AND LIPO-HYPEROXIDASE IN EXPERIMENTAL ARTERIOSCLEROSIS OF*]. LIU DEWEN ET AL. **shanxi journal of traditional chinese medicine.** 1990;6(5):39. (chi).

175- gera: 61711/rd/re
[PROTECTIVE EFFECT OF PANAX QUINQUEFOLIUM ON RABBITS WITH ACUTE MYOCARDIAL INFARCTION]. LU ZHONG ZHI ET AL. **journal of normam bethune university of medical sciences.** 1990;16(3):229-232 (chi*).

176- gera: 82306/di/cg
EFFECT OF ELECTROACUPUNCTURE AT NEIGUAN AREA ON CARDIAC ENERGETICS IN DOGS ATTACKED WITH EXPERIMENTAL MYOCARDIAL ISCHEMIC ANGINA. MENG JINGBI ET AL. **2eme congres mondial d'acupuncture et moxibustion, paris.** 1990;:202. (eng).
There have been a lot of researches on acupuncture for treating coronary heart disease, angina pectoris, but no systematic research on myocardial contractility, myocardial oxygen metabolism and energy metabolism, etc, was reported up to now. In this research, catheter have been placed in the left anterior descending coronary artery (LAD) of 30 healthy mongrel dogs ; the blond flow of LAD was reduced to 3-5ml/min., thus acide myocardial ischemia was produced. Basing on this condition, 0.1-0.16m1 bradykinin (2g/ml) was given into LAD coronary before recording to produce myocardial angina. Then effect of electroacupuncture (EA) at Neiguan (PC-6) area on myocardial contractility, cardiac hemodynamics, myocardial oxygen metabolism and energy metabolism were observed for investigating the mechanism of acupuncture to treat coronary heart disease. The results are as follow : 1/ EA could prevent the fall of MAP, CO, CI : decrease obviously LVEDP during myocardial angina, improved obviously cardiac hemodynamics during myocardial ischemic angina. The improvement of cardiac hemodynamics is dependent on the improvement of myocardial contractility. 2/ EA could prevent the full of LVSP, dP/dtmax, -dP/dtmax and Vpm, Vmax, Vce-DP40 ; increase myocardial developed tension (DT) of ischemia area ; shorten t-dP/dtmax during experimental myocardial angina. This indicated that EA could raise myocardial compensative ability and strengthen myocardial contractility is based upon the alteration of myocardial metabolism. 3/ EA could decrease arterial-venous difference of blood oxygen capacity and 02E of ischemic myocardium obviously, decrease V-A. difference of CO2 partial pressure, prevent the decrease of pH of coronary sinus blood. This indicated that EA could reduce oxygen consumption of the ischemic myocardium, prevent accumulation of acid metabolic products. 4/ EA could increase free fatty acid uptake and reduce glucose uptake in ischemic myocardium, corrected partially myocardial metabolic disorders of glucose and free fatty acid during experimental myocardial angina. 5/ EA could reduce S ST ond NST of epicardial ECG during experimental myocardial angina, reduce myocardial CPK release. Thus decreased myocardial ischemic injury. Above results indicated that EA could reduce oxygen consumption of the ischemic myocardium, correct metabolic disorders of myocardial glucose and free fatty acid, reduce product of acid metabolic products. Thus myocardial cell acidosis was prevented, myocardial contractility and cordiac hemodynamics were improved and meanwhile myocardial ischemic injury was decreased. In one word, EA could adjust or correct the disorder of cardiac

177- gera: 61719/rd/re
[EFFECTS OF 7-METHOXY-4'-HYDROXYL-3'-DIETHYLAMINOMETHYLISOFLAVONE ON HEART ATRIUM AND VETRICULAR PAPILLARY MUSCLES OF GUINEA PIG]. MIAO HUI ET AL. **acta pharmacologica sinica.** 1990;11(4):300-303 (chi*).

178- gera: 61401/di/ra
[THE STUDY OF SEMEN OF RADISH (RAPHANUS SATIVUS) EFFECTS LOWERING PULMONARY ARTERIAL PRESSURE UPON ACUTE ANOXIC PULMONARY HYPERTENSION]. SHI BO ET AL. **chinese traditional and herbal drugs.** 1990;21(10):25-7 (chi).

179- gera: 61715/rd/re
[EFFECTS OF PRAERUPTORIN C ON ISOLATED GUINEA PIG ATRIUM AND MYOCARDIAL COMPLIANCE IN MAN]. WU XIN ET AL. **acta pharmacologica sinica.** 1990;11(3):235-238 (chi*).

180- gera: 80919/di/ra
[EFFECTS OF REPEATED APPLICATIONS OF ACUPUNCTURE UPON MICROCIRCULATORY CHANGES INDUCED BY ACUTE THERMAL STIMULATION IN THE RABBIT EAR CHAMBER]. X. **journal of the japan society of acupuncture.** 1990;40(1):84. (jap).

181- gera: 61726/rd/re
[EFFECTS ON ANISODAMINE ON REPERFUSION INDUCED ARRHYTHMIAS AND HEMODYNAMICS IN RABBITS]. YAO XIU JUAN ET AL. **journal of the fourth military medical university.** 1990;11(2):126-128 (chi*).

182- gera: 61730/rd/re
[PROTECTIVE EFFECT OF SILYBIN ON CULTURED MYOCARDIAL CELLS OF NEW BORN RAT INFECTED WITH COXSACKIE B5 VIRUS]. ZHANG TONG HUA ET AL. **academic journal of the second military medical university.** 1990;11(2):143-146 (chi*).

183- gera: 61363/di/ra
[PROTECTIVE EFFECT OF SALVIA MILTIORRHIZA AQUEOUS EXTRACT ON CHEMICALLY INDUCED ACUTE

MYOCARDIAL ISCHEMIA IN RATS]. ZHENG RU YUN ET AL. **chinese journal of integrated traditional and western medicine.** 1990;10(10):609-11 (chi*).

184- gera: 81322/di/ra
PROTECTIVE EFFECT OF DANSHEN DURING MYOCARDIAL ISCHEMIA AND REPERFUSION : AN ISOLATED RAT HEART STUDY. ZHOU W ET AL. **american journal of chinese medicine.** 1990;18(1-2):19-24 (eng).

185- gera: 61732/nd/re
[INFLUENCE OF RESIBUFOGENIN ON HEMODYNAMICS IN RABBITS]. ZHU YUAN ET AL. **academic journal of the second military medical university.** 1990;4(1):14-16 (chi*).

186- gera: 64238/di/ra
[PERIPHERAL PATHWAYS AND REGULATION OF THE HYPOTHALAMUS ON THE CORRELATION BETWEEN NEIGUAN AND HEART]. CAO QINGSHU ET AL. **chinese acupuncture and moxibustion.** 1991;11(4):34 (chi*).
In this paper, the connective pathways between Neiguan (P 6) acupoint and heart were analysed on the cat and rabbit model with coronary artery occluded and reperfused. The findings indicated that acupuncture could promote the recovery of the ischemic myocardium, which was achieved probably by way of afferent group II and III of the median nerve, cardiac vagal and sympathetic nerves as well as the modulation of the preoptic-anterior hypothalamic area. These results provide new experimental evidence for the theory of interrelation between channels and collaterals and internal organs. It also provides a new experimental basis for the acupuncture

187- gera: 64021/di/ra
[ROLE OF VENTROLATERAL MEDULLARY AREA IN THE EFFECT OF ELECTRICAL NEEDLING "NEIGUAN" POINT ON IMPROVING ACUTE MYOCARDIAL ISCHEMIA IN RABBITS]. HUANG EMEI ET AL. **acupuncture research.** 1991;16(2):108 (chi*).
40 healthy rabbits were anesthetized with 20% urethane and divided into 4 groups in same number: 1) electroacupuncture group, physiological saline was applied locally on the S area of the ventral surface of the medulla; 2) naloxon group, naloxon (5mg/ml. pH 6. 5-7) was applied on the S area; 3) propranolol group, propranolol (5mg/ml. pH 7. 0) was applied on the S area; 4) control group, physiological saline was applied on the S area. The state of regional myocardial ischemia of the rabbits was caused by ligating the LAD for 20 minutes. The changes of the blood pressure and the ST values of standard lead II of ECG were observed before ligating and, at 5', 10', 15', 20', 25', 30', 35', 40', 45', 50', 55' and 60' after loosening respectively. Electro-acupuncture was applied on "Neiguan" points (P 6) bilaterally at 10' after ligating for 60 minutes (intensity 6-8 volt, frequency 60/min). The average potential changes of the ST values of standard lead II of 5 times were used as the index to evaluate myocardial ischemia and its recovery course. The followings are the main results of our observation. There was no statistical difference, of blood pressure and the ST values between the four groups before ligation. At 10 minutes after ligation, the ST values were elevated markedly, but there were no statistical significance between the four groups. During electroacupuncture, blood pressures in the four groups decreased gradually, but comparing with electroacupuncture group, blood pressure in the naloxon group and the control group decreased markedly, the propranolol group was the same as the electroacupuncture group. the ST values in the four groups recovered gradually, but the recovering in the naloxon and the control group was sluggish and there was statistical difference comparing with electroacupuncture group, and no statistical difference was observed between propranolol group and electroacupuncture group. Those results show that there is an improved effect of electroacupuncture on acute ischemic myocardial injury. The effect can be reversed by naloxon applied locally on

188- gera: 64239/di/ra
[EFFECT OF LOCUS CORULEUS ON PRESSOR RESPONSE INDUCED BY ELECTRO-ACUPUNCTURE OF "RENZHONG" IN RATS]. LIU JIANBIN ET AL. **chinese acupuncture and moxibustion.** 1991;11(4):37 (chi*).
Electro-acupuncture of the Renzhong (GV 26) points of the hypotensive rats induced by overventilation could cause significant pressor response. After the bilateral locus coeruleus (LC) having been destroyed by electric current the pressor response decreased of disappeared. The experiment of micro-injection of drugs into the LC demonstrated that endogenous acetylcholine in the LC may play an important role in the pressor response, while the endogenous norepinephrine had no significant effect.

189- gera: 37131/nd/re
[ADAPTIVE STABILIZATION OF MYOCARDIUM UNDE THE INFLUENCE OF ELECTROACUPUNCTURE AND CARDIAC PROTECTION]. MEERSON FZ ET AL. **kardiologiia.** 1991;31(10):72-7 (rus*).

190- gera: 70068/nd/re
[ADAPTIVE STABILIZATION OF MYOCARDIUM UNDER THE INFLUENCE OF ELECTROACUPUNCTURE AND CARDIAC PROTECTION]. MEERSON FZ ET AL. **kardiologiia.** 1991;31(10):72-7 (rus*).
Adaptation of animals to short-term stress is known to result in the development of the adaptive structure stabilization phenomenon. At the level of the heart, the phenomenon appears as increased resistance to elevated catecholamine and calcium levels, reperfusion paradox. This study attempted to reproduce the phenomenon without applying any stress, but using a course of transauricular electric acupuncture. The isolated hearts of rats undergoing a course of the acupuncture were ascertained to show a clear-cut high resistance to the reperfusion paradox. After coronary ligation, the extent of necrosis in the animals having the acupuncture was significantly lower, as in those adapted to stress. The assumption that the phenomenon forming the basis for cardioprotective

191- gera: 64023/di/ra
[AN EXPERIMENTAL STUDY ON ACUPOINT NEIGUAN-HEART SHORT REFLEX]. WANG TONG ET AL. **acupuncture research.** 1991;16(2):115 (chi*).
It is reported that the dichotomizing afferent fibers supply both the pericardium and the brachium in rat. This finding provides a possible morphological explanation for short reflex that transmits messages only through the connection of peripheral nerve dichotomization. The animals utilized in this study were 15 male or female wistar rats (235-360g). Rats were anesthetized with 26% urethane (100mg/100g b. wt, i.p.) and then, acute myocardial ischemia (AMI) was produced by pituitrin (1.0-1.5 u/a rat, i. m.). Following anesthetization and AMI, The I lead of electrocardiogram (ECG) was recorded, the superficial electrical resistance and cutaneous temperature of the acupoint Neiguan (P 6) and Zusanli (St 36) were measured. In order to break off the long reflex that invokes some effects through central nervous system, the dorsal roots were removed of spinal cord segments cervical C6-T1. In this condition, the AMI can decrease in superficial electrical resistance and cutaneous temperature of the acupoint Neiguan (P< 0. 01). Acupuncture at Neiguan can also influence the superficial electrical resistance of the acupoint Neiguan, improve in the ECG, increase in the heart rate, but acupuncture at Zusanli has no these effects. It

192- gera: 64000/di/ra
[THE ROLE OF MIDBRAIN PERIAQUEDUCTAL GREY IN THE INHIBITION OF CENTRAL CARDIAC ISCHEMIA BY SOMATIC NERVE AND ITS MECHANISM IN RABBITS]. ZANG XINGWEI ET AL. **acupuncture research.** 1991;16(1):5 (chi*).
Experiments were performed on vagotomized male rabbits weighing 1. 8-2. 2 kg. Urethane and chloralose were administered intravenously, and were paralysed by flaxedil. After a cannula was inserted into femoral artery to measure

blood pressure, the epicardial electrogram (EECG) was recorded. Then we inserted a bipolar electrode into caudal dorsolateral subdivision of periaqueductal grey (CDL), or dorsomedial hypothalamic nucleus (DMH). In some animals, a microinjecting tube was inserted into CDL for microinjection of enkephalin antibodies. In 12 animals, stimulation of CDL could elicit pressor response and elevation of EECG-ST segment. When stimulating deep peroneal nerve, these two responses were inhibited. In 14 animals, with brainstem transected in P5 level, the stimulation of DPN could not inhibit the pressor response induced by CDL, but still inhibited the EECG-ST segment changes. After enkephalin antibodies were injected into CDL, DPN could not inhibit EECG-ST changes. In 4 animals, instead of enkephalin antibodies, rabbit serum had no effects. The unit discharges of 96 neurons in CDL were recorded by glass microelectrodes, among them, 15 neurons could be excited by DMH stimulation. We called these neurons the defence reaction related neurons. Stimulation of DPN or median nerve could inhibit the spontaneous discharge and DMH evoked discharge of these defence reaction related neurons. Conclusions: 1. DPN stimulation can inhibit the pressor response and cardiac ischemia induced by defence reaction centre in CDL of PAG. The inhibitory effect on cardiac ischemia is still highly remained after the brainstem is cut in P5 level to eliminate the influence of hypothalamic arcuate nucleus. Local enkephalin may be involved in this inhibitory process. 2. The inhibitory process is present in the defence reaction centre at CDL of PAG during the acupoint inhibition of cardiac ischemia induced by DMH stimulation, which means that midbrain defence reaction centre may be directly inhibited by stimulating the acupoint zusanli or neiguan, in the inhibitory process of central

193- gera: 35720/di/ra

THE EFFECT OF NEEDLE-EMBEDDING THERAPY ON THE DEVELOPMENT OF HYPOXIC PULMONARY HYPERTENSION. ZHU LIXIA ET AL. **world journal of acupuncture-moxibustion.** 1991;1(1):27-32 (eng).

Needles were embedded at bilateral Neiguan (PC6) and Sanyinjiao (SP6) points of rats to observe its effect on the development of hypoxic pulmonary arterial hypertension. Both PAP and RAP were significantly raised in all rats after they have been confined in a hypobaric chamber (simulating an altitude of 5000 M above sea level) for 15 days, but they were much lower in the rats with embedded needles (Acupuncture group) than that in the rats without needles (Hypoxic group). In acupuncture group, RV.Ic was not lowered as a result of hypoxia, but raised to a certain extent. All the indexes represented the left heart function, including CAP, LVP.±dp/dt.max and LV.Ic, were slightly compensatively increased in hypoxic group, and they were significantly increased in acupuncture group. And there is close negative correlation between PAP and LVP in acupuncture group. These results indicate that improvement of heart function by embedding needles at acupoints might delay the development of hypoxic

194- gera: 63961/di/ra

[SPINAL MECHANISM OF THE INHIBITORY EFFECT OF SOMATIC IMPUT ON THE CARDIAC ISCHEMIA INDUCED BY HYPOTHALAMUS STIMULATION]. ZHU WEI-JIAN ET AL. **acta physiologica sinica.** 1991;43(2):148 (chi*).

Experiments were carried out on 58 urethane-chloralose anaesthetized, gallamine triethiodide immobilized and vagotomized rabbits under artificial ventilation. Median nerve (MN) or deep peroneal nerve (DPN) stimulation could inhibit completely or partially the deflection of ischemic ECG ST segment due to stimulation of dorsomedial hypothalamic nucleus (DMH). The inhibitory effect of MN stimulation was more marked than that of DPN stimulation. Intrathecal injection (ith) of morphine (40 micrograms) could also inhibit these ischemic ECG ST segment changes. After ith naloxone (20 micrograms), the inhibitory effect of MN stimulation on DMH stimulation- induced ischemic ECG ST segment changes was abolished. In intact rabbits, it was demonstrated that L- enkephalin (LENK) immunoreactive material was increased in the left or right intermediolateral cell column (IML) of T2-5 spinal cord after stimulation of left MN or DPN for five minutes. In the CI transected rabbits, stimulation of MN only increased ipsilateral LENK immunoreactive material content in the thoracic IML, while stimulation of DPN produced no such an effect. These results indicate that stimulation of MN or DPN can inhibit cardiac ischemia induced by DMH stimulation and that the effect of MN stimulation is more potent. The inhibitory effects may be mediated by an increase of LENK immunoreactive material in the bilateral IML produced through some supraspinal mechanisms; whereas the effect of MN stimulation may also be mediated by an increase of ipsilateral spinal LENK immunoreactive material in the thoracic IML through segmental mechanism to inhibit the

195- gera: 43718/di/ra

[EFFECT OF ELECTROACUPUNCTURE ON MYOCARDIAL OXYGEN METABOLISM AND PH OF CORONARY SINUS BLOOD DURING EXPERIMENTAL ANGINA PECTORIS]. CAO CUIHUA ET AL. **acupuncture research.** 1992;17(1):26 (chi*).

The experiments were performed on 30 healthy mongrel dogs, intubation was taken in the left anterior descending coronary (LAD), the blood in carotid was transported to LAD through a peristaltic pump, the blood flow was reduced to 3-5 ml/min, thus acute myocardial ischemia was produced. Basing on this condition, 0. 1-0. 16 ml bradykinin (2 ùg/ml) was given into LAD coronary before recording to produce angina pectoris. The effects of electroacupuncture (EA) at "Neiguan" area on myocardial oxygen metabolism, pH of coronary sinus blood and myocardial contractile force were observed (EA intensity 5 volts, frequency 1-20 Hz). The results are as follows: 1. EA could reduce obviously A-V difference of blood oxygen capacity (Ca-vO2) and the rate of myocardium extracting oxygen (O2E), thus reduced obviously oxygen consumption of ischemic myocardium. 2. EA could reduce V-A difference of carbon dioxide partial pressure (Pv-aCO2), prevent the decrease of pH of coronary sinus blood (PHv), this indicated that EA could prevent accumulation of acidic metabolic products. 3. EA could increase myocardial developed tension (DT) of ischemic area, strengthen myocardial contractile force of ischemic area. Above results indicated that EA could reduce oxygen consumption of ischemic myocardium, prevent the decrease of pH of coronary sinus blood, thus myocardial cell acidosis was prevented, myocardial contractile force was strengthened. It might be the mechanism of

196- gera: 37085/di/ra

EFFECT OF ELECTROACUPUNCTURE ON THE PHASE OF REPOLARIZATION OF ISCHEMIC MYOCARDIUM IN THE RABBIT. CAO QINGSHU ET AL. **world journal of acupuncture moxibustion.** 1992;2(4):46-50 (eng).

This experiment was performed on 30 rabbits. The heart rate was paced artificially at a constant speed. AMI of the left ventricle was produced by ligature of LVB for 30 min and MAPs recorded from the bonder zone of ischemia with the bipolar epicardial contact electrodes. The chief findings showed that MAPDso , MAPD90 abbreviated obviously and MRR accelerated apparently after AMI while EA could inhibit the abbreviation of MAPDso and MAPD90, and delay the acceleration of MRR. It suggested that EA might be beneficial to anti-arrhythmia and prevented from suddenly cardial death. Therefore the result has provided not only a new experimental evidence for an important contribution to coronary heart disease treated with acupuncture but also a new content for the relationship between Neiguan (PC 6) of Pericardium Meridian and the heart.

197- gera: 43717/di/ra

[EFFECTS OF HEAD POINT NEEDLING ON CARDIAC FUNCTION AND HEMODYNAMICS]. GUO WENYU. **acupuncture research.** 1992;17(1):26 (chi*).

The present investigation was undertaken to observe the effects of head point-cardiovascular point needling on the cardiac function and hemodynamics in 8 anesthetized dogs, and to elucidate the underlying mechanisms and its clinical implications. Cardiovascular point needling might induce significant changes in cardiac function and hemodynamic parameters: arterial systolic pressure decreased by 22. 4 ± 8.

88 from 104. 6 ± 20. 55 mmHg, diastolic pressure by 16. 7 ± 8. 04 from 66. 5 ± 18. 03 mmHg, mean arterial pressure by 18. 6 ± 8. 16 from 79. 2 ± 18. 36 mmHg, left ventricular end-diastolic pressure by 0. 3 ± 0. 47 from 3. 6 ± 1. 94 mmHg, Lv dp/dt max by 300. 1 ± 200. 1 from 2000. 1 ± 700. 8 mmHg/s, coronary resistance by 399 ± 310 from 1959 ± 1150 dyn. s. cm-5, femoral arterial resistance by 242 ± 634 from 2438 ± 1595 dyn. s. cm-5, total peripheral resistance by 1570. 7 ± 691. 0 from 9000. 2 ± 2537. 4 dyn. s. cm-5, and left ventricular work index by 2. 7 ± 1. 9 from 11. 4 ± 5. 17 kg. m/min/m2, whereas the coronary sinus blood flow increased by 0. 7 ± 1. 6 from 33. 6 ± 14. 7 ml/min. There were significant differences between the values of all parameters before and after cardiovascular point needling (p > 0. 005). The results indicated that cardiovascular point needling was capable of lowering the cardiac preload and afterload with resultant fall in blood pressure and cardiac oxygen consumption, as well as relaxing the coronary vessels and consequent increase in coronary blood flow with enhanced oxygen supply. These beneficial effects induced by cardiovascular point needling provided the basis for the treatment of hypertension, coronary artery diseases and cardiac failure in clinic.

198- gera: 37714/nd/ra
EFFECTS OF ELECTROACUPUNCTURE OF "ZUSANLI" ACUPOINT ON HIGH BLOOD PRESSURE AND BLOOD HYPERVISCOSITY IN STRESS RATS. JIN YX ET AL. **journal of tongji medical university.** 1992;12(4):209-15 (eng).
Elevation of blood pressure (BP) and blood viscosity (BV) was induced in unanesthetized Wistar rats by fixing and hanging. Electoacupuncture at "Zusanli" acupoint or microinjection of GABA (60 micrograms/10 microliters) into the IV ventricle of the brain could lower high BP and BV induced by fixed-hanging, which could be blocked by micro-injection of GABA receptor antagonist bicuculline (60 micrograms/10 microliters). The results showed that the depressant effect of electroacupuncture of "Zusanli" acupoint on high BP and blood hyperviscosity induced by fixed-hanging might be mediated by the activation of GABA receptors in the brain.

199- gera: 44731/di/ra
[EFFECT ON BLOOD PRESSURE BY STIMULATING NERVES UNDER ACUPOINT]. LIA JIA ET AL. **shanghai journal of acupuncture and moxibustion.** 1992;11(4):13 (chi*).
Experiments were performed on urethane-chloralose anaesthetized rats and cats. Significant depressor responses were induced by stimulation of deep peroneal nerve (DPN) or deep radial nerve (DRN) with weak current, and pressor response could be induced if stronger current were used on the other hand, stimulation of the superficial peroneal nerve (SPN) often caused pressor responses, with both weak or stronger currents, and stimulation of median nerve (MN) always induced very strong pressor effect. When the blood pressure of rats was lowered by haemorrhage, stimulation of any of the somatic nerves mentioned above induced pressor responses, and mostly could be blocked by scopolamine i.v., only the pressor effect of MN stimulation could note Electrophysiological evidence showed that the somatic input induced by stimulation of nerves underneath acupoints convergent to the

200- gera: 37078/di/ra
THE EFFECT OF ELECTROACUPUNCTURE AT AURICULAR HEART AREA ON THE ELECTROCARDIOGRAM AND THE CARDIAC FUNCTION. MU JIANHUA ET AL. **world journal of acupuncture moxibustion.** 1992;2(4):19-22 (eng).
Puncturing the auricular heart area can improve the condition of myocardial ischemia of CHD. These can be observed from ST-T turning to normal or nearly normal, Q-X/Q-T ratio was decreased. Puncturing the auricular heart area can improve the cardiac function of CHD. This can be shown from the fact that PEP became shortened, LVET became prolonged, PEP/LVET ratio was decreased, A/E-O was reduced, IRT was reduced after acupuncture. There are a certain relationship and specificity between the auricular heart area and the heart.

201- gera: 35634/di/ra
ELECTROACUPUNCTURE OF AURICULAR POINTS : EFFECT ON ARTERIAL PRESSURE AND RESPIRATORY RATE IN HYPERTENSIVE PATIENTS AND ASPHYXIAL RABBITS. XU FENGZHOU ET AL. **international journal of clinical acupuncture.** 1992;3(1):7-12 (eng).
Our past work showed that the arterial blood pressure (ABP) generally increased markedly and respiratory rate (RR) became more rapid in the early and middle periods of acute apnea or acute experimental hypertension in rabbits. Bonkob's (1985) experiment revealed that ABP in 57 cases increased, systolic pressure of 25 cases ranged from 24.61 to 26.6 kPa, and diastolic pressure of 22 cases increased among 107 cases of patients with bronchial asthma. But, with alleviation of dyspnea, ABP of 48 cases decreased to near normal. For the cure of such patients, Ziment (1983) considered medication dangerous and advised conservative non-medical treatment. Ear electroacupuncture (EEA) has not only shown good effects on decreasing ABP, it is safe and convenient. This paper reports respectively the effects on decreasing ABP it is safe and convenient. This paper reports respectively the effects of EEA in Erjian (ear tip) points of asphyxiating rabbits and hypertensive patients on ABP, the frequency

202- gera: 43719/di/ra
[EFFECT OF ELECTROACUPUNCTURE POINT ON THE VALUE OF VENTRICULAR FIBRILLATION THRESHOLD IN RATS]. ZHANG LINXUE ET AL. **acupuncture research.** 1992;17(1):33 (chi*).
The Neiguan and Lingdao were stimulated by electroacupuncture in anesthetized Wistar rats. We observed that the value of ventricular fibrillation threshold (VFT) was increased significantly in 30 min of electro-acupuncturing (P < 0. 01) and in 15 min of stopping the acupuncturing (P < 0. 05). Although the value of VFT was increased until 30 min of stopping acupuncture, it was not significantly different compared with its basic value. The control group were dealt with the same way as the experimental group except electroacupuncture. The value of VFT measured in control group were not significantly different compared with its basic value.

203- gera: 44830/di/ra
[RELATIONSHIP BETWEEN THE EFFECT OF MOXIBUSTION ON LOWERING BLOOD PRESSURE IN SHR RATS AND THE CHANGE OF MONOAMINE NEUROTRANSMITTER IN BLOOD AND BRAIN]. ZHOU YIPING ET AL. **acupuncture research.** 1992;17(4):265 (chi).

204- gera: 48553/di/ra
[THE EFFECTS OF PUNCTURE-BLEEDING TO ACUTE MYOCARDIAL ISCHEMIA IN RABBITS]. GAO LI-LI ET AL. **shanxi journal of traditional chinese medicine.** 1993;9(1):21 (chi).

205- gera: 48731/di/ra
ACUPUNCTURE IN PREVENTION OF VENTRICULAR FIBRILLATION SECONDARY TO MYOCARDIAL INFARCTION : ANIMAL EXPERIMENT TO EXPLORE ITS MECHANISM. GUAN XINMIN ET AL. **international journal of clinical acupuncture.** 1993;4(3):235-42 (eng).
In recent years, it has been shown by experiments conducted in our laboratory that acupuncture in the treatment of coronary diseases can not only effectively ameliorate or eliminate angina pectoris, improve coronary microcirculation and normalize ECG, but also enhance the pumping function of left ventricle blood and raise the supply of oxygen and energy to the ischemic Korea. Our research has also revealed that acupuncture can correct arrhythmia. Cardiac arrhythmia is the most serious complication in such ischemic heart diseases as myocardial infarction, while ventricular fibrillation is the main cause of death in myocardial infarction

patients. A series of studies have been performed in this laboratory on the effect of acupuncture in prevention and treatment of ventricular fibrillation secondary to acute and subacute myocardial infarction and its mechanism involving receptor. As ventricular fibrillation threshold (VFT) and spontaneous ventricular fibrillation (VF) almost allays go together, electrical stimulation to determine VFT is commonly used to study the mechanism of VF. This study used VFT as the index in systematically observing the influence of needling certain acupoints on VFT of rats with acute and subacute myocardial infarction. The results showed that acupuncture could effectively raise the VFT of rats with acute and subacute myocardial infarction, i.e., acupuncture in the treatment of acute and subacute myocardial infarction could effectively increase the anti-fibrillation capacity of the ischemic myocardium and thereby offer a good preventive treatment to secondary ventricular fibrillation. This effect has been shown to be related to inhibition of ß-receptors and excitation of M-

206- gera: 45583/di/ra
[INHIBITORY EFFECT OF INTRAVENTRICULAR ADMINISTRATION OF MORPHINE ON THE HYPERVISCOSITY AND ELEVATION OF BLOOD PRESSURE INDUCED BY STRESS IN THE RAT]. GUO XUE-QIN ET AL. **acta physiologica sinica.** 1993;45(3):270-8 (chi*).
Experiments were performed on 99 Wistar rats. It was found that hyperviscosity and elevation of blood pressure (BP) could be induced by hanging and restraining conscious rats with their four limbs tied on a frame. These effects were unaffected by bilateral vagotomy. By intravenous injection of propranolol or phentolamine, elevation of BP could be reduced, while stress-induced hyperviscosity could only be reduced by propranolol (i.v.). Stress- induced hyperviscosity and elevation of BP could be inhibited by electroacupuncture applied to the right hind leg or microinjection of morphine into 4th ventricle of the brain. On the other hand, if opiate receptor antagonist naloxone was given into the 4th-ventricle, the stress-induced hyperviscosity and elevation of BP could no longer be inhibited by electroacupuncture. It is suggested that the hyperviscosity and elevation of BP induced by hanging and restraining are mediated by excitatory cardiovascular sympathetic outflow with the result of activation of adrenoreceptors. Activation of the opiate receptors in the hindbrain may be responsible for decrease in stress- induced hyperviscosity and elevation of BP and for the inhibitory effect of electroacupuncture of the right hind leg

207- gera: 4234/di/cg
EFFECT OF COMPLEXING Ca2+ IN THE PERICARDIUM MERIDIAN ON THE EXPERIMENTAL ARRYTHMIA RABBITS TREATED BY PUNCTURING. GUO YI ET AL. **third world conference on acupuncture.** 1993;:167. (eng).

208- gera: 45103/di/ra
EXPERIMENTAL RESEARCH ON TREATMENT OF HYPERTENSION WITH ACUPUNCTURE. ZHOU YIPING ET AL. **journal of traditional chinese medicine.** 1993;13(4):277-80 (eng).
The effects of acupuncture on blood pressure, microcirculation of bulbar conjunctiva and hemorheology in spontaneous hypertensive rats (SHRs) were observed. The mechanism of acupuncture to lower blood pressure is discussed from the viewpoint of microcirculation and hemorheology. SHRs and Wistar rats of both sexes weighing about 250g were divided into three groups: 1. Acupuncture group of 15 SHRs, in which Quchi (LI 11) and Taichong (Liv 3), Hegu (LI 4) and Zusanli (St 36) were selected and punctured twice a day with the needle retained for 15 minutes and the reducing method by twisting and twirling the needle used, 15 days constituting a course; 2. Control group of 10 SHRs; 3. Control group of 10 normal Wistar rats. All rats in groups 2 and 3 were treated in the same way as in Group 1 except for the acupuncture. It was found that the morphology and blood flow of bulbar conjunctiva microcirculation in SHRs were obviously abnormal: the capillaries with blood flow were reduced in number, the arterioles were spasmodic and of smaller diameter, the venules were dilated due to blood stasis which showed a slow granular flow of blood, the blood viscosity was increased, hematocrit increased, and the time for RBC electrophoresis prolonged. The blood was in a state of high viscosity, high concentration and high aggregation.

209- gera: 53773/di/ra
[EFFECTS OF ACUPUNCTURE ON BLOOD PRESSURE, SOD, LPO AND FIVE KINDS OF TRACE ELEMENTS TO STENOSIS OF RENAL ARTERY CAUSED HYPERTENSION IN MICE]. FENG GUI-MEI ET AL. **chinese journal of integrated traditional and western medicine.** 1994;14(12):739 (chi*).
Changes of blood pressure, superoxide dismutase (SOD), lipid peroxidation (LPO) and concentration of five kinds of trace elements including Cu, Zn, Fe, Ca, Mg were observed before or after acupuncture treatment in the stenosis of renal artery caused hypertension in mice. It was demonstrated that acupuncture in the points of Zusanli, Neiguan, Sanyinjiao and Yongquan in mice could reduce the blood pressure significantly and influence the concentrations of SOD, LPO and five kinds of trace elements in the stenosis of renal artery caused hypertension in mice. The possible mechanisms of acupuncture in reducing the blood pressure and influencing the changes of SOD, LPO and five kinds of trace elements were also discussed.

210- gera: 49955/di/ra
EFFECTS OF ACUPUNCTURE ON BLOOD PRESSURE AND PLASMA RENIN ACTIVITY IN TWO-KIDNEY ONE CLIP GOLDBLATT HYPERTENSIVE RATS. LEE HS ET AL. **american journal of chinese medicine.** 1994;22(3-4):215-9 (eng).
Shih-Hsüan [Sipseon (EX-UE-11)] are Curious loci lying outside of the meridians on the tips of each finger. These loci have long been the acupuncture sites for the treatment of cardiovascular disease in oriental medicine. Alterations in the renin-angiotensin system have been considered as the pathophysiological basis of the origin and/or maintenance of hypertension. Activation of the plasma or tissue renin-angiotensin system may be one of the cause of hypertension. The aim of the present study was to elucidate the effects of acupuncture on blood pressure and plasma renin activity. Acupuncture was applied on the EX-UE-11 of two-kidney one clip Goldblatt hypertensive rats. Both the systolic blood pressure and the plasma renin activity decreased significantly after treatment with acupuncture on the EX-UE-11. In the sham-operated and control rats, the procedure influenced the parameters without significant changes. The results suggest that the suppressive hemodynamic effect of

211- gera: 49856/di/ra
[INFLUENCE OF ELECTROACUPUNCTURE OF NEIGUAN (PC 6) ON AMI-INDUCED CHANGES IN ELECTRICAL ACTIVITY OF DORSAL HORN NEURONS]. LIU JUNLIN ET AL. **acupuncture research.** 1994;19(1):37-41 (chi*).
The electrical activity of the dorsal horn (DH) neurons was recorded extracellularly by glass micro-pipettes in urethane-chloralose anesthetized rabbits to analyze the role of the thoracic segments (T2-T3) of the spinal cord in the integration of information from electroacupuncture (EA) at Neiguan (PC 6) and acute myocardial ischemia (AMI). Results were: 1) after AMI, of 83 DH neurons, 18 displayed a significant excitatory response, 14 an obvious inhibitory reaction and 51 no apparent change; 2) after EA at Neiguan (PC 6), of 10 neurons with AMI-induced excitatory response, the electrical activity of 9 neurons was suppressed and the other 1 still maintained its excitatory state; of 8 neurons with AMI-induced inhibitory response, 7 were relieved from the suppressed state, the other 1 had no change following EA; and 3) the receptive field and the responsive types to somatic stimulation were examined in 83 DH neurons. Results showed that signals from EA at Neiguan (PC 6) and AMI could converge to the DH neurons of T2-T3. It suggests that DH participates in the integrative course of information from EA and

212- gera: 53850/di/ra

[INFLUENCE OF THORACIC SPINAL SUBARACHNOID MICROINJECTION OF PHENTOLAMINE ON THE EFFECT OF ELECTROACUPUNCTURE]. LIU JUNLING ET AL. **acupuncture research.** 1994;19(2):47-51 (chi*).
The influence of thoracic spinal subarachnoid microinjection of Phentolamine (Phen, 200ug/20ul) on the effect of electroacupuncture (EA) at Neiguan (PC 6) was observed in 42 urethan-chloralose anesthetized rabbits. Results showed that: 1) EA of Neiguan (PC 6) could significantly promote recovery of elevated ST-segments and T-waves of electrocardiogram induced by acute myocardial ischemia (AMI). 2) subarachnoid microinjection of phentolamine had no marked influence on recovery of ST-segments and T-waves, but impeded recovery of blood pressure of post-AMI; and 3) subarachnoid microinjection of phentolamine could significantly weaken or eliminate the effect of EA of Neiguan (PC 6) in accelerating recovery of ST-segments and T-waves of post-AMI. It denotes that alpha-receptors of intra-thoracic spinal cord participate in the action of EA of Neiguan (PC 6) in improving AMI, and the upper thoracic segment of the spinal cord is one of the links for connecting Neiguan and the heart.

213- gera: 49785/di/ra
MU OPIATE RECEPTOR ANTAGONIST BLOCKS ELECTROACUPUNCTURE INHIBITION ON NOXIOUS BLOOD PRESSURE RESPONSE IN RABBITS. WANG MIAOZHEN ET AL. **acupuncture and electrotherapeutics research.** 1994;19(1):3-9 (eng).
A pressor blood pressure response was elicited by strong electric shock stimulation of the front paw in rabbits anesthetized with chloralose and urethane, immobilized by gallamine triethiodide and maintained by artificial ventilation. The pressor response showed a gradual decline in 3-4 successive trials. Naloxone or TCTAP, a specific mu receptor antagonist, administered intraventricularly (icv) at that time could facilitate the pressor response (n = 8, P < 0. 02; n = 7, P < 0. 01), suggesting the involvement of mu receptors in the declination of the pressor response. Electroacupuncture could inhibit the pressor response (n = 7, P < 0. 01), and the inhibition was readily blocked by TCTAP (n = 7, P < 0. 01). No obvious changes were observed in the normal saline control group. The results suggest that acupuncture is able to inhibit the pressor response via the activation of the opioid peptidergic system,

214- gera: 85078/di/ra
THE EFFECT OF ELECTROACUPUNCTURE (EA) ON ACUTE MYOCARDIAL INFARCTION (AMI) IN RATS (abstract). ZHANG JING ET AL. **acupuncture research.** 1994;3-4:65-6 (eng).

215- gera: 85696/di/ra
[EFFECT OF ELECTROACUPUNCTURE AT NEIGUAN POINT ON TRANSMEMBRANE POTENTIAL OF THE VENTRICULAR CELLS OF RABBITS WITH ACUTE MYOCARDIAL ISCHEMIA IN SITU]. HUANG EMEI ET AL. **acupuncture research.** 1995;20(2):33-5 (chi*).
Acute myocardial ischemia of rabbit was caused by Pituitrin (2.5u/kg) intravenously. The effect of electroacupuncture ((EA) at Neiguan point on transmembrane potential was observed with a suspension microelectrode technique in situ and under the condition of natural respiration; the blood pressure and electrocardiogram were recorded simultaneously. The results showed that during acute myocardial ischemia, the resting potential (RP), action potential amplitude (APA) and maximum velocity of depolarization (Vmax) were all significantly decreased, but action potential duration (APD) was markedly prolonged and after depolarization potential appeared at the same time. All of the above mentioned changes of potentials could cause arrhythmia , while EA at Neiguan could weaken the changes of the potentials markedly , prevent the ventricular cells from changing to .slow reaction cells and reduce the incidence of after depolarization potential. That may be a reason

216- gera: 53762/di/re
NEURAL MECHANISM OF DEPRESSOR RESPONSES OF ARTERIAL PRESSURE ELICITED BY ACUPUNCTURE- LIKE STIMULATION TO A HINDLIMB IN ANESTHETIZED RATS. OHSAWA H ET AL. **journal of the autonomic nevous system.** 1995;51(1):27-35 (eng).
The effects of acupuncture-like stimulation of a hindlimb on renal sympathetic nerve activity (RNA) as well as mean arterial blood pressure (MAP) were examined in anesthetized rats. An acupuncture needle (diameter of 160 microns) was inserted into the skin of a hindlimb and underlying muscles to a depth of 5 mm and was twisted at about 1 Hz. Under deep anesthetic condition, in about 70% of trials, acupuncture-like stimulation for 60 s induced a decrease in MAP which was accompanied by a decrease in RNA. Acupuncture-like stimulation applied to the muscles alone, but not to the skin alone, induced inhibition of RNA and MAP. Transection of sciatic and femoral nerves ipsilateral to the hindlimb stimulation completely abolished the responses of RNA and MAP. The hindlimb stimulation excited the femoral and common peroneal afferent nerves. In spinalized animals, the hindlimb stimulation did not produce any changes in RNA and MAP. The results indicate that the decrease in MAP induced by acupuncture-like stimulation of a hindlimb is a reflex response. The afferent pathway is composed of hindlimb muscle afferents while the efferent pathway is composed of sympathetic vasoconstrictors including the renal nerves. Endogenous opioids may not be involved in the present reflex, because an intravenous injection of naloxone, an antagonist of the opioid receptors, did not influence the reflex.

217- gera: 21360/di/ra
[EFFECT OF ACUPUNCTURE STIMULATION ON THE BLOOD FLOW OF FEMORAL ARTERY IN RABBITS]. X. **journal of the japan society of acupuncture.** 1995;45(1):25. (jap).

218- gera: 85704/di/ra
[INFLUENCE OF CHANGING CA++ CONCENTRATION IN NEIGUAN (PC6) ON THE EFFECT OF ACUPUNCTURE TREATING EXPERIMENTAL ARRHYTHMIA OF RABBITS]. ZHANG YANJUN ET AL. **acupuncture research.** 1995;20(2):63-7 (chi*).
We have made two kinds of experimental arrhythmia of rabbits by injecting aconitine and stimulating hypothalamus. Acupuncture could improve arrhythmia, after Ca++ in Neiguan (PC6) was chelated with EDTA solution the effect of acupuncturing Neiguan (PC6) was abolished. It indicates that Ca++ may be the key factor of acupuncture effect and one of the important material bases of the functional activity of meridians and collaterals.

219- gera: 56707/di/ra
[EFFECT OF ELECTROACUPUNCTURE DECREASING BLOOD PRESSURE AND STUDY ON ITS CENTRAL MECHANISMS IN RATS OF ACUTE EXPERIMENTAL HYPERTENSION]. WANG GUANGYI ET AL. **chinese acupuncture and moxibustion.** 1997;17(2):105 (chi*).

220- gera: 67145/di/ra
EFFECTS OF ELECTROACUPUNCTURE AT NEIGUAN ON MYOCARDIAL MICROCIRCULATION IN RABBITS WITH ACUTE MYOCARDIAL ISCHEMIA. CAO QINGSHU ET AL. **journal of traditional chinese medicine.** 1998;18(2):134-9 (eng).
This paper reports the effects of electroacupuncture (EA) at Neiguan (P 6) on myocardial microcirculation and electrical activity observed in rabbits with acute myocardial ischemia (AMI) by employing the vascular casting method and taking monophasic action potential (MAP) as an index. It was found that in the ischemic border zone of the heart, the electrical excitability was strengthened, the shortening of the phase repolarization inhibited, and the number of the micrangia increased in some degree following EA. This suggests that EA can relieve arteriolospasm, inhibit extreme dilatation of blood capillaries, modulate imbalance of micro-vasomotion of the coronary artery, improve myocardial blood-supply, and promote normalization of electrical activities of the ischemia myocardium. This fact not only elucidates the recovery

mechanism of the ischemic myocardium promoted by EA at Neiguan (P 6), but also provides morphological basis for the theory of relationship between

221- gera: 67280/di/ra
[PROBING INTO MECHANISMS OF REDUCTION OF BLOOD PRESSURE INDUCED BY ELECTROACUPUNCTURE OF "TINGGONG" POINT (ST 19)]. GU YUNHUI ET AL. **chinese acupuncture and moxibustion.** 1998;18(3):167 (chi*).
Reduction of blood pressure was induced by electroacupuncture of "Tinggong" (SI 19) and Quchi (LI 11) points at 2Hz and 3V in the rat at anesthesia with urethane, immobilization with curare and artificial respiration. The reduction of blood pressure could be reversed by previous injection of bicocullin, a blocker of r-amino-butyric acid (GABA) receptor, into the bilateral RVl, and the reduction was not changed by injection of cyproheptadine, a blocker of 5-HT receptor. Previous injection of GABA into bilateral A1 or A2 regions in the brain stem could decrease, even reverse the reduction of blood pressure. Because our previous study has indicated that excitation of A1 or A5 region induces reduction of blood pressure through GABA-nergic intermediary neurons inhibiting RVL- excitatory sympathetic neurons, it is suggested that A1 and A2 regions are involved in reduction response of blood

222- gera: 58689/di/ra
[EXPERIMENTAL RESEARCH ON THE REFLEX DECREASE OF HEART RATE ELICITED BY ACUPUNCTURE STIMULATION IN ANESTHETIZED RATS]. KOBAYASHI S ET AL. **journal of the japan society of acupuncture.** 1998;48(2):120-9 (jap*).
The reflex mechanisms of the responses in heart rate elicited by acupuncture stimulation in anesthetized rats were examined. An acupuncture needle measuring 160µ m in diameter was inserted into skin and the underlying muscles to the hindlimb to a depth of about 5mm and was twisted once every second for 1 min. A decrease in the heart rate was observed in 55% of 22 trials and in 70% of 20 trials when muscles separated from the overlying skin were stimulated. The response was abolished completely by cutting the femoral and sciatic nerves. The response was not influenced by transecting of the bilateral vagi but was totally abolished by transecting of the cardiac sympathetic nerves. Therefore, we conclude that the decrease in heart rate elicited by acupuncture stimulation of a hindlimb is based on a somato autonomic reflex, in which the efferent pathway is composed of hindlimb muscle afferents and the efferent pathway is composed of cardiac sympathetic nerves.

223- gera: 58068/di/ra
[THE INFLUENCE OF CENTRAL CHOLINERGIC SYSTEM ON RESTORATION OF ISCHEMIC MYOCARDIUM BY ELECTRIC ACUPUNCTURE]. LI YIWEI ET AL. **shanghai journal of acupuncture and moxibustion.** 1998;17(2):42-3 (chi*).
The effect of lateral ventricular injection of pilocarpine or atropine on the improvement of ischemic myocardium by electro-acupuncturing point Neiguan (P6) was observed in a rat model of acute myocardiac infarction. The findings showed that electro-acupuncturing point Neiguan (P6) promoted the restoration of anoxic myocardium after acute myocardiac infarction, that lateral ventricular injection of atropine strengthened the promoting effect of electro-acupuncture on the restoration, while the injection of pilocarpine delayed the restoration of oxygen supply

224- gera: 57967/di/re
REVERSAL OF REFLEX-INDUCED MYOCARDIAL ISCHEMIA BY MEDIAN NERVE STIMULATION : A FELINE MODEL OF ELECTROACUPUNCTURE. PENG LI ET AL. **circulation.** 1998;97(12):1186-94 (eng).
Various studies have cited acupuncture's ability to reduce myocardial ischemia, arrhythmias, and hypertension. To investigate the physiological mechanisms underlying these observations, a model of reflex-induced, reversible myocardial ischemia was developed to test the effects of median nerve stimulation as a surrogate for electroacupuncture. Methods and Results: Chloralose-anesthetized cats were instrumented to measure arterial blood pressure, left ventricular pressure, left ventricular dP/dt, heart rate, left anterior descending (LAD) coronary blood velocity, and regional wall motion. The LAD artery either was partially occluded or a small diagonal branch was ligated. Subsequently, transient reflex activation of the cardiovascular system was evoked by application of bradykinin (typically one microg/mL) to the gallbladder, which significantly increased myocardial oxygen demand (double product), left ventricular dP/dt, and coronary blood velocity and caused ischemia-induced regional dysfunction, evidenced by significant (P<.05) reduction in normalized wall thickening. However, when median nerves were stimulated at low frequency (5 Hz) to mimic electroacupuncture, bradykinin-induced change in normalized wall thickening was significantly improved (P<.05) and remained augmented 21 hour. Results were similar in partial and complete occlusion groups. Significant improvement in wall thickening was associated with unchanged increment of coronary blood velocity and significantly diminished increments of double product and diastolic blood pressure. Conclusions: These results suggest that stimulation of the median nerve to mimic electroacupuncture diminishes regional myocardial ischemia triggered by a sympathetically mediated increase in cardiac oxygen demand. The mechanism of this effect is related to reduction in cardiac oxygen demand, secondary to a diminished pressor response. These data provide the first documentation of the physiological mechanisms underlying the possible beneficial effect of electroacupuncture in the context of restricted coronary

225- gera: 59928/di/ra
EFFETTI DELL'ELETTROAGOPUNTURA DI NEIGUAN SUL MICROCIRCOLO DEL MIOCARDIO DI CONIGLI CON ISCHEMIA MIOCARDICA ACUTA. CAO QINGSHU ET AL. **rivista italiana di medicina tradizionale cinese.** 1999;76(2):64-7 (ita).
Il presente lavoro riferisce gli effetti dell elettroagopuntura (EA) di neiguan (PC6) sul microcircolo del miocardio e sull'attività elettrica osservati in conigli con ischemia miocardica acuta (IMA) impiegando il metodo del calco vascolare e assumendo come indice il potenziale d'azione monofasico (PAM). Si è riscontrato che dopo EA nella zonalimitante l'area ischemicadel cuore, l'eccitabilità elettrica risultava rinforzata, l'accorciamento della fase di ripolarizzazione inibito e il numero di microvasi aumentato in un certo grado. Questo suggerisce che l'EA è in grado di risolvere l'arteriolospasmo, di inibire]a dilatazione estrema dei capillari sanguigni, di modulare lo squilibrio microvasomotorio dell'arteria coronaria, di migliorare l'apporto ematico al miocardio e di promuovere la normalizzazione dell'attività elettrica del miocardio ischemico. Questo riscontro non solo spiega il meccanismo di recupero dell'ischemia miocardica determinato dall'EA su neiguan (PC6), ma offre anche la base morfologica per

226- gera: 73857/di/ra
[INHIBITORY EFFECT OF ELECTROACUPUNCTURE ON THE CARDIOVASCULAR RESPONSE EVOKED BY APPLYING BRADYKININ ON THE GALLBLADDER]. CHAO DONG-MAN ET AL. **acta pharmaceutica sinica.** 1999;51(2):180 (chi*).
The effects of electroacupuncture (EA) on the pressor response and reversible myocardial dysfunction induced by application of bradykinin (BK) on the gallbladder were studied in cats anesthetized with alpha-chloralose. The cardiovascular responses evoked by application of BK included a pressor response, an increase of LVP and its dP/dt max, tachycardia and a decrease of local wall motion of the left ventricle with a supplying branch of the left anterior descending coronary artery ligated beforehand. Following EA of bilateral Neiguan acupoints, the pressor response of BK was inhibited, while the regional left ventricle myocardial dysfunction was alleviated significantly. The effects of EA were reversed by iv injection of naloxone (0.4 mg/kg). Our results indicate that EA has an inhibitory effect on the BK-induced pressor and ischemic dysfunction may be rel, which ated with endogenous

227- gera: 59655/di/ra
[EFFECT OF ACUPUNCTURE STIMULATION ON THE BLOOD FLOW OF THE SKELETAL MUSCLES IN RABBITS]. HIROYUKI TSURU ET AL. **journal of the japan society of acupuncture.** 1999;49(1):6-4 (chi*).
To clarify the effect of acupuncture on the skeletal muscle blood flow, measurements of muscle blood flow by hydrogen gas clearance method were taken on the left anterior tibial muscles of thirty rabbits (weighing about 2.5 to I.3 kg) anesthetized with pentobarbital sodium (35mg/kg, i.v.). Arterial blood pressure in the common carotid artery and body temperature were also measured. Blood flow was measured 6 times every 10 min. In the stimulation group, acupuncture needles were inserted into the Center of the anterior tibial muscle before the third measurement and "sparrow pecking" was performed, then the needles were removed. In the denervation group, the sciatic nerve was cut to observe the influence of denervation on the effect of acupuncture. In the stimulation group (n=12), a significant increase in blood flow to the muscles occurred after acupuncture stimulation, compared with the control group (n=12). The increase in blood flow in the stimulation group was maintained until the final measurement. Arterial blood pressure and body temperature did not change. The blood flow values in the second and third measurements were 18.1 ± 2.2, and 17.6 ± 2.4, respectively, in the control group, and 17.8 ± 1.8 and 25.9 ±2.2 ml/min/ l00g (mean ± S.E.) in the stimulation group. The changes in blood flow values from the second to the third measurement were -0.5 ± 0.3 ml/min/l00g in the control group, and +8.2 ± 2.0 ml/min/l00g in the stimulation group. An increase in blood flow after acupuncture stimulation also occurred in the denervation group (n=3). Despite there being no change in arterial blood pressure. blood flow was increased after acupuncture stimulation, and the increment of blood flow after acupuncture stimulus was also observed in the denervation group. Therefore, the increment of blood flow seems to have been caused by vasodilation of the blood vessels

228- gera: 77087/di/ra
[EFFECTS OF ACUPUNCTURE ON EARLY HEART FUNCTION OF SEVERELY SCALDED RATS]. HU DELIN ET AL. **acupuncture research.** 1999;24(4):288 (chi*).
In order to explore the effects of acupuncturing the Heart Meridian on heart function of severe scald, the Wistar rats with 30% TSBA III° scald were used. The changes of myocardial mechanics and the contents of cardiac troponin T in serum were observed in the group of scald and the group of acupuncturing Heart Meridian. The result indicated that the range of change of myocardial mechanics and cardiac troponin T in the group of acupuncturing Heart Meridian is lower than that in the group of scald. The result suggested that acupuncturing Heart Meridian has an improving effects on early heart dysfunction of severe severe scald.

229- gera: 72710/di/ra
EFFECT OF ACUPUNCTURE ON INTRACELLULAR FREE CALCIUM AND MAGNESIUM CONCENTRATIONS IN CARDIAC MYOCYTES OF HEMORRHAGIC HYPOTENSION RABBITS. HU JIE ET AL. **word journal of acupuncture-moxibustion.** 1999;9(4):38-2 (eng).
The effects of electroacupuncture on hypotension and the concentrations of intracellular free calcium ([Ca2+]i) and free magnesium ([Mg2+]i) in cardiac myocyte of rabbit were studied. The hemorrhagic hypotension was induced by losing blood from femoral artery of rabbit. [Ca2+] i and [Mg2 +] i were determined by use of AR-CM- COM cation measurment system and the Fura-2-AM and Furaptra-AM ionic probes. [Ca2+]i was significantly decreased, while [Mg2+]i was increased, and the ratio of [Ca2 +] i / [Mg2 +] i was decreased as the blood pressure went down with losing blood. The blood pressure and [Ca2+] i of treatment group rabbits were significantly raised by electroacupuncturing the points of "Renzhong "and "Chengjiang", and the ratio of [Ca2+]i /[Mg2+]i was increased. The [Ca2+]i and [Mg2+]i in cardiac myocyte of normal rabbits had no clear changes by electroacupuncture. It suggested that intracellular free calcium and magnesium ion in cardiac myocyte may play

230- gera: 77029/di/ra
[EFFECTS OF ACUPUNCTURE ON INTRACELLULAR FREE CALCIUM AND MAGNESIUM CONCENTRATIONS IN CARDIAC MYOCYTES OF HEMORRHAGIC HYPOTENSION RABBITS]. HU JIE ET AL. **acupuncture research.** 1999;24(2):131 (chi*).
The effects of electroacupuncture on hypotension and the concentrations of intracellular free calcium ([Ca2+]I) and free magnesium ([Mg2+I) in cardiac myocyte of rabbit were studied. The hemorrhagic hypotension was induced by losing blood from femoral artery of rabbit. [Ca2+]I and [Mg2+]I were determined by use of AR-CM-COM cation measurement system and the ionic probe fura-2 and furaptra. [Ca2+]I was significantly decreased, while [Mg2+]I was increased, and the ratio of [Ca2+]i/[Mg2+]I was decreased as the blood pressure went down with losing blood. The blood pressure and [Ca2+]I of treatment group rabbits were significantly raised by electroacupuncturing the points of "Renzhong" and "Chengjiang" and the ratio of [Ca2+]i/[Mg2+]I was increased. The cardiac myocyte [Ca2+]I and [Mg2+]I of normal rabbits had no clear changes by electroacupuncture. It suggested that intracellular free calcium and magnesium ion in cardiac myocyte may play an important role in regulating blood pressure by

231- gera: 59237/di/ra
[EFFECTS OF ACUPUNCTURE ON CARDIAC MUSCLE CYTOSOLIC FREE CALCIUM AND MAGNESIUM CONCENTRATIONS OF EXPERIMENTAL HYPERTENSIVE RABBITS]. HU LIE ET AL. **shanghai journal of acupuncture and moxibustion.** 1999;18(3):30 (chi*).
Objective: The effects of electroacupuncture on hypertension and the concentrations of cardiac muscle cytosolic free calcium ([Ca2+]i) and free magnesium ([Mg2+]i) of rabbit were studied. Method: The experimental rabbit hypertension was induced by norepinephrine (NE) with intravenous drip injection, [Ca2+]i and [Mg2+]i were determined . Results: [Ca2+]i was significantly increased. while [Mg2+]i was decreased. and the ratio of [Ca2+]i / [Mg2+]i was increased as the blood pressure risen with NE injection ;The blood pressure and [Ca2+]i of treatment group rabbits were depressed by electroacupuncturing the two points of zi,sanli. and the ratio of [Ca2+]i / [Mg2+]j was decreased. The cardiac muscle [Ca2+]i and [Mg2+]i of normal rabbits had no clear changes by electroacupuncture. Conclusion It suggested that cardiac muscle cytosolic free calcium and magnesium ion might

232- gera: 77088/di/ra
[AN EXPERIMENTAL METHOD ABOUT THE ANTAGONISTIC EFFECT OF ELECTROACUPUNCTURE AT "NEIGUAN" POINT ON THE HYPOTENSION CAUSED BY STIMULATION OF AORTA NERVE]. LI HANXIAN ET AL. **acupuncture research.** 1999;24(4):291 (chi*).
By recording the left common carotid blood pressure in rabbits (n=12), the correlation and the effect of electroacupuncture (EA) at the right aorta nerve and the bilateral "Neiguan" point (NP) were observed. Result and suggestion: this experiment shows the two ways can regulate blood pressure and EA at NP may reverse hypotension caused by stimulation of aorta nerve. It provides an animal experiment evidnce for central regulation mechanism of the blood pressure by NP. This method is simple and may be repeated very well. It can also be a

233- gera: 77086/di/ra
[STUDY ON MECHANISMS OF ELECTROACUPUNCTURE AT ACUPOINTS OF PERICARDIUM CHANNEL FOR IMPROVING EXPERIMENTAL ACUTE MYOCARDIAL ISCHEMIA]. LIU JUNLING ET AL. **acupuncture research.** 1999;24(4):282 (chi*).
In the present study, the mechanisms of electroacupuncture (EA) at acupoints of the Pericardium Channel (PC) for improving experimental acute myocardial ischemia (AMI) were studied in rabbits, cats and rats, from the view of combination of physiological functions and anatomical structures and by using multiple indexes. Results

demonstrated that: 1) EA of "Neiguan" (PC6), etc, and non-points of the PC was of favorable regulative action on the electrical and mechanical activities of the ischemic heart; the PC is a functional entirety in regulating physiological activity of the ischemic heart; the effect of acupoints of PC has a relative specificity to a certain degree; 2) EA could improve cardiac performance and myocardial energy metabolism, while its key action mainly lay in the improvement of the microcirculation of the ischemic myocardium; 3) the action of EA of PC acupoints in bettering AMI is closely associated with EA-induced inhibition on the hyperactivity of the periphery sympathy- adrenal gland-CA system, central adrenergic and noradrenergic systems during AMI, and also associated with EA- induced enhancement of functional activity of the adrenal cortex and increase in the organic anti-disease ability. Therefore, the local actions of EA on ameliorating AMI, protecting myocardial cells from injury are definitely not separable from its regulative action on the functional activities of the whole body. This fact suggests that in treatment of coronary heart disease, both the performance of the cardiovascular system and the state of the whole body should be considered simultaneously.

234- gera: 59063/di/re
THE EFFECT OF ELECTRO-ACUPUNCTURE STIMULATION ON THE MUSCLE BLOOD FLOW OF THE HINDLIMB IN ANESTHETIZED RATS. NOGUCHI E ET AL. **journal of the autonomic nervous system.** 1999;75(23):78-86 (eng).
The effect of electroacupuncture stimulation (EAS) on blood flow in the muscle biceps femoris (MBF) and on mean arterial pressure (MAP) was investigated in anesthetized, artificially ventilated rats. EAS was applied to a hindpaw for 30 s at intensities of 0.110.0 mA and at frequencies of 120 Hz, and MBF was measured by laser Doppler flowmetry. EAS at less than 1.0 mA, which excited group II fibers maximally and III fibers partially in a saphenous nerve, had no significant effect on MBF or MAP, although both revealed variable responses. EAS at 1.5 mA, which additionally excited group III fibers almost maximally and was subthreshold for group IV fibers, produced a small but significant increase in MBF and MAP. These responses were further increased at 2.0 mA or more, which was suprathreshold for group IV fibers. The increased response of MBF at 10.0 mA was followed by a small decrease in MBF. EAS at 1.5 mA or more also elicited a decrease in renal blood flow (RBF) and an arterial pressor response. Following severance of the bilateral splanchnic nerves, EAS at 10.0 mA induced only a slight increase in MAP and a decrease in MBF. The decrease in MBF was abolished following further severance of the bilateral lumbar sympathetic trunks (LSTs). In conclusion, EAS to a hindpaw at a stimulus strength sufficient to excite group III and IV afferent fibers, particularly group IV afferent fibers, can produce a reflex decrease in MBF via a reflex activation of muscle sympathetic activity, although this decrease in MBF is overridden by an increase in MBF caused passively by a reflex MAP pressor response elicited by a reflex increase, at least in splanchnic sympathetic activity.

235- gera: 59491/di/ra
[COMPARATIVE STUDY ON THE EFFECT OF PUNCTURE AT TSUSANLI COMBINED WITH ENEMA OF GASTRODIA AND UNCARIA DECOCTION TO EXPERIMENTED HYPERTENSION RATS]. PAN KEYING ET AL. **traditional chinese medicinal research.** 1999;12(3):53 (chi).

236- gera: 74648/di/ra
[EFFECT AND ELECTRO-ACUPUNCTURE RESPONSE OF THE RENAL MECHANORECEPTORS ON THE CARDIAC FUNCTION IN RABBITS]. SUN LUSHEN ET AL. **shanghai journal of acupuncture and moxibustion.** 1999;18(2):31 (chi*).
Objective To observe the effect and electro-acupuncture response of the renal mechanoreceptors on the cardiac function in rabbits. Method Observations were made of the effect of the elevated urethral pressure and stimulated the renal mechanoreceptor on the cardiac function in 23 anaesthetised rabbits under the guidance of myocardial mechanics and response to the electro-acupuncture. Result The results indicate that the various parameters of myocardial mechanics such as PVP1, EDP, ±dp/dt, max, Vce, Lo all decline (P<0. 001). When gradient pressure stimulated the renal mechanoreceptors in the nerve-intact group (Group A n = 15) and the buffer nerve-removed group (Group B n=8), the decline of Group B being more obvious (P<0. 001) and shows the pressure-response relationship. After the electro-acupuncture on the "Shen-shu" point, the cardiac function of both group were inhibited significantly (P<0. 001). Conclusion These studies suggest that the activation of the renal receptors results in inhibiting the cardiac function; The arterial baroreceptor reflex plays a buffering role in the cardiovascular responses to the renal efferent impulses; The application of the electro-acupuncture on the "Shen-shu" Point might

237- gera: 73966/di/ra
INVESTIGACION SOBRE EL MECANISMO DE REDUCCION DE LA TENSION ARTERIAL INDUCIDA POR LA ELECTROACUPUNTURA EN EL PUNTO TINGGONG (ID19).AGU YUNHUI ET AL ZHENG LIANGXI ET AL. **enerqi.** 1999;5:31-5 (esp).
Las ratas del experimento -anestesiadas con ura_ tano, inmovilizadas con curare y su]etos de respiracion artifical-fueron estimuladas mediante electoacupuntura (2 Hz. Y 3 V.) En el punto tinggong (ID 19) (acompanado con el punto quchi, IG 11) y mostraron el efecto de reduccion de la tension arterial. La previa inyeccion de bicuculina, un bloqueador del receptor de acido aminobutirico-r (GABA), en las regiones laterales ventrales del comienzo de la médula oblonga (RVL) de ambos lados, puede revertir este efecto de reduccion de la tension. No obstante, la inyeccion de ciproheptadina, un bloqueador del receptor de 5-HT (5-hidroxitriplofana), no tiene este efecto. La inyeccion previa de gaba en las regiones a1 o A5 del tronco cerebral de ambos lados también puede atenuar e incluso revertir este efecto. En vista de que nuestros trabajos anteriores habian demostrado que las regiones a1 o A5, cuando se encuentran excitadas, pueden inhibir las neuronas simpaticas de excitacion de la rvl a través de las neuronas interm ediarias en erg éticas de gaba dentro de la rvl, produciéndose el efecto de reduccion de la tension, este trabajo ha comprobado que las regiones A1 y A2 también estan implicadas en el efecto de

238- gera: 90588/di/ra
THE CENTRAL MECHANISM OF THE DEPRESSOR-BRADYCARDIA EFFECT OF "TINGGONG (SI 19)-QUCHI (LI 11)" 2HZ-ELECTROACUPUNCTURE. CHANG-JIANG ET AL. **acupuncture and electrotherapeutics research.** 2000;25(3-4):145-53 (eng).
Roles of central adrenergic receptors and opoid receptors in the depressor-Bradycardia effect of 3V, 2Hz " Tinggong-Quchi " electroacupuncture (the EA-DpB, i.e. the depressor Bradycardia induced by electroacupuncture) were studied by intracerebroventricula (icv) injection of prazosin, yohimbin or propranol, naloxone or by intra- arachnoid (ith) injection of naloxone. Voltage-dependent depressor effects were induced by 2Hz "Tinggong-Quchi" acupunctures. The depressor effect of 3V, 2Hz " Tinggong-Quchi " acupuncture was attenuated by icv injection of a 5-receptor antagonist-propranalol, but was not blocked by the icv injection of an (x, -or "x, -receptor antagonist prazosin or yohimbin. Icv injected naloxone but not ith injected naloxone blocked or reversed the EA-DpB. Results suggest that central P-receptors or opoid receptors in the brain are selectively involved in the EA-DpB.

239- gera: 77289/di/ra
[ROLE OF ENDOGENOUS OPIATE PEPTIDES IN THE EFFECT OF ELECTROACUPUNCTURE POINT NEIGUAN ON ACUTE MYOCARDIAL ISCHEMIA]. CHEN DONG FENG ET AL. **shanghai journal of acupuncture and moxibustion.** 2000;19(3):36 (chi*).
Objective: To investigate the role of endogenous opiate peptides in the effect of electroacupuncture of Neiguan on acute myocardial ischemia. Methods: Acute myocardial ischemia (AMI) model was set up by ligating the left ventricular branch of coronary artery of rabbit. ST segment in

ECG and scope of AMI were applied as indices to the study. Twenty-nine rabbits were randomly divided into 3 groups: control group, electroacupuncture (EA) group and Naloxone with EA group. Results: It was found that EA on Neiguan could promote the recovery of ST segment in AMI and decrease the scope of AMI, but this effect was abolished by microinjection of Naloxone (a blocker of opiate receptor) into the lateral ventricle. Conclusion: These results suggest that endogenous opiate peptides play an important role in decreasing the damage from AMI by EA on Neiguan and may serve as an important factor in

240- gera: 91459/di/ra
[EFFECT OF ACUPUNCTURE COMBINED WITH DUSHENG INJECTION ON MECHANICAL PARAMETERS OF CARDIAC MUSCLE IN RABBITS WITH ACUTE HEART FAILURE]. HU LING ET AL. **journal of anhui traditional chinese medical college.** 2000;19(6):33 (chi*).
Objective: To explore the effect of acupuncture and Chinese drugs on cardiac function in rabbits with acute heart failure (AHF). Method: 48 rabbits were divided into 4 groups at random: normal group, model-group, treatment group and control group. AHF model was simulated with 5-barbital sodium intravenous injection. The changes of cardiac function were observed after the rabbits with AHF were treated with acupuncture and Dusheng injection. Result: Compared with normal group, cardiac function was improved significantly in treatment group. Compared with control group, there was no significantly difference on cardiac function in treatment. It groups, but the efficacy kept longer time. Conclusion: Acupuncture and Chinese drugs are a very promising combined treatment.

241- gera: 76240/di/ra
[THE EFFECT OF ANTIPRESSURE AND THE CHANGE OF RAS IN PLASMA BY ELECTROACUPUNCTURE AT "NEIGUAN" POINT IN RABBIT]. LI HANXIAN ET AL. **acupuncture research.** 2000;25(3):200 (chi*).
In the rabbit model of falling pressure induced by electroacupuncture (EA) at aorta nerve (AN), the antipressure effect of EA at "Neiguan" point (NP) and the level of PRA, AII and Ald (before and after EA) in plasma were observed (n = 12). The result suggests that there may be antagonism between NP and AN by EA during the impulse introducing to NTS, which recovers the pressure to the original points. Furthermore, the level of PRA, AII and Ald rised after EA. It seems to be a factor in this process.

242- gera: 88189/di/ra
[INVOLVEMENT OF THE CENTRAL ADRENERGIC SYSTEM IN THE RELATIONSHIP BETWEEN "NEIGUAN" AND THE HEART]. LI YIWEI ET AL. **acupuncture research.** 2000;25(4):263 (chi*).
The effect of lateral cerebroventricular microinjèction of norepinephrine (NE) on acute myocardial ischemia (AMI) and the influence of lateral cerebroventricular microinjection of phentolamine or propranolol on the effect of electroacupuncture (EA) of "Neiguan" (PC 6) in improving AMI were observed in 49 rabbits. The results showed that: (1) lateral cerebroventricular microinjection of NE could slow down the recovery of AMI; (2) EA of "Neiguan"(PC 6) could accelerate the recovery of AMI; (3) lateral cerebroventricular microinjection of phentolamine abolished the effect of EA, but propranolol did not. The facts suggest that central adrenergic system participate in the action of EA at "Neiguan"in ameliorating AMI. EA of "Neiguan" plays its role probably by way of

243- gera: 76239/di/ra
[THE EFFECT OF LOWERING BLOOD PRESSURE BY ACUPUNCTURED AT THE "ZUSANLI" POINTS OF RATS]. PAN KEYING ET AL. **acupuncture research.** 2000;25(3):198 (chi*).
The hypertensive models of rats caused by "two kidneys and a clamp" were acupunctured at the "Zusanli" points daily for ten days. The result showed that the arterial pressure of rat' s tail of acupuncture treated group was significantly lower than that of hypertensive model group (P < 0.01) and had no significant difference compared with normal group (P>0.05). Acupuncturing at the "Zusanli" points had the effect of lowering blood pressure but had no influence on heart rate. The effect of lowering blood pressure might be related to the mechanism of

244- gera: 91581/di/ra
[EXPERIMENTAL STUDY ON STIMULATION OF THE RAT'S HEART AND ACUPOINT NEIGUAN CAUSING CHANGE OF SAME CELL POTENTIAL OF SPINAL GANGLION]. SHI MINGYI ET AL. **jiangsu journal of tcm.** 2000;21(10):52 (chi).

245- gera: 93393/di/ra
[EFFECTS OF ELECTROACUPUNCTURE ON NEIGUAN POINT ON CREATINE KINASE AND MALONDIALDEHYDE AFTER MYOCARDIAL ISCHEMIA - REPERFUSION INJURY]. YAN JIE ET AL. **journal of hunan university of traditionnal chinese medicine.** 2000;20(3):62 (chi*).
To explore the mechanisrn of electroacupuncture (EA) on Neiguan point on myocardial ischemia-reperfusion injury, the changes of Creatine Rinase (CK) and malondiadehyde (MDA) in blood serum were observed 40 min after myocardial ischemia and the after reperfasion. Results: As compared with the EA group, the contents of CK and MDA of myocardial ischemia-reperfusion group were increased significantly and their differences were also apparent (P<O. 01). The present stady suggested that EA on Neiguan point had a protective role on myocardial ischemia-reperfusion by weakening injury reaction induced by free radical decreasing the releare of CK and

246- gera: 77968/di/ra
[IN COMPARISON OF THE THERAPEUTIC EFFECT TO INJECT ISOPRENALINE TO THE RAT WITH CARDIAC FAILURE IN DIFFERENT WAYS]. YANG REN DA ET AL. **chinese journal of basic medicine in tcm.** 2000;6(7):26 (chi*).

247- gera: 76241/di/ra
[INFLUENCE ON SDHASE,ATPASE AND TECTOLOGY OF CARDIAC MUSCLE ON HYPERLIPIDEMIA IN RAT BY ELECTROACUPUNCTURE AT THE POINTS OF HEART MERIDIAN]. ZHANG LUFEN ET AL. **acupuncture research.** 2000;25(3):203 (chi*).
The study, selecting specific points "Shenmen" and "Shaohai" of hand-shaoyin heart meridian, observed the influence on SDHase, ATPase and technology of cardiac muscle on hyperlipidemia in rat. The study indicated: (1) Activity of ATPase and SDHase increased, and the technology of cardiac muscle improved obviously after EA. (2) The therapeutic effect of EA at "Shenmen" on hyperlipidemia was better than at "Shaohai". It suggested that acupuncture could improve the status of ischemia and anoxia, promote the energy creating and utilising.

248- gera: 77154/di/ra
[THE ROLE OF VAGUS NERVE IN RAISING VENTRICULAR FIBRILLATION THRESHOLD (VFT) OF EARLY ACUTE MYOCARDIAL ISCHEMIA BY ELECTRO-ACUPUNCTURE]. ZHANG ZHI-XIONG ET AL. **shanghai journal of acupuncture and moxibustion.** 2000;19(5):36 (chi*).
Objective To observe the effect of electro-acupuncture (EA) on the ventricular fibrillation threshold (VFT) of early acute myocardial ischemia experimental animal, and probe into action mechanism of vegetative nerve in raising VFT by EA. Methods We made the acute myocardial ischemia rabbit model by ligating coronary artery to observe VFT, the content of plasma cAMP and cGMP, and make power spectrum analysis of heart rate in control group, EA group and cutting off vagus nerve group. Results EA could remarkably raise VFT of early acute myocardial ischemia (P< 0. 05.P<0. 01), and the EA effect disappeared after cutting off vagus nerve (P<0. 05,P<0. 01); EA could markedly reduce the content of cAMP and raise cGMP, adjust the ratio of cAMP/cGMP (P< 0. 05,P<0. 01); EA still stabilise total variation of heart rate, reduce ratio of LF/HF (P<0. 05,P< 0. 01). Conclusion EA

could raise the VFT of early acute myocardial ischemia, which is carried out by regulating tension and equilibrium of the sympathetic nerve and vagus nerve, and vagus nerve plays an important role in raising VFT of early acute

249- gera: 98180/di/ra
[EFFECT OF ELECTRICAL ACUPUNCTURE AT NEIGUAN AND INJECTION OF P MATTER AT LOCUS CERULEUS AREA ON PLASM ENDOTHELINS OF RABBITS WITH MYOCARDIAL ISCHEMIA]. CHANG JIA-SONG, LI YI-WEI, CHEN DONG-FENG, ET AL. **journal of nanjing university 0 traditional chinese medicine (natural science).** 2001;17(4):245 (chi*).
OBJECTIVE To investigate into the effect of electrical acupuncture at Neiguan and the injection of P matter at locus ceruleus area on plasma endothelins of rabbits with acute myocardial ischernia. METHOD : With plasma endothelins as the index, observations were made on animal models with myocardial ischemia caused by ligation of coronary arteries to detect the effect of electrical acupuncture at Neiguan and injection of P matter and its antagonist at locus ceruleus area on the recovery process of acute myocardial ischemia RESULT : Electrical acupuncture at Neiguan and injection of P matter at locus ceruleus area could inhibit the abnormal increase of plasma endothelins after the occurrence of acute myocardial ischernia, but the two methods did not have the synergic effect. The injection of the antagonist of P matter at locus ceruleus area has the antagonizing effect against the effect of electric-al acupuncture in preventing the increase of the content of plasma endothelins. CONCLUSION : The decrease of plasma endothelins may be one of the mechanisms of die recovery of acute myocardial ischernia by electrical acupuncture at Neiguan. P matter may play a role in the correlation between

250- gera: 94811/di/re
CARDIOVASCULAR BENEFICIAL EFFECTS OF ELECTROACUPUNCTURE AT NEIGUAN (PC-6) ACUPOINT IN ANESTHETIZED OPEN-CHEST DOG. SYUU Y ET AL. **jpn j physiol.** 2001;51(2):231-8 (eng).
Neiguan (PC-6) is a traditional acupoint in the bilateral forearms, overlying the median nerve trunk. Neiguan electroacupuncture (EA) has been believed to affect cardiovascular function and used in traditional Chinese medicine to improve or treat a wide range of health conditions and diseases, including angina pectoris, myocardial infarction, hypertension, and hypotension. However, few physiological studies have assessed the beneficial effects of Neiguan EA on the cardiovascular function. In the present study, we investigated its effects on the cardiovascular function in normal open-chest dogs under pentobarbital and fentanyl anesthesia. We also obtained left ventricular (LV) pressure-volume (P-V) data with a micromanometer catheter and a volumetric conductance catheter. Mean arterial pressure, end-diastolic volume, heart rate, stroke volume, cardiac output, and end-systolic pressure gradually decreased by 5 to 10% over 1.5 h without Neiguan EA. Neiguan EA at 40 Hz, however, increased these cardiovascular variables by 10 to 15%, especially end-systolic elastance (Ees) by 40% ($p<0.05$) over 15 to 60 min. After Neiguan EA was stopped at 1 h, these facilitated cardiovascular variables decreased below the pre-EA level. This beneficial effect of electroacupuncture may contribute to the effectiveness of the acupuncture in Chinese medicine.

251- gera: 99637/di/ra
THE EFFECTS OF ELECTROACUPUNCTURE AT THE HEART MERIDIAN ON MYOCARDIAL CONTRACTILE FUNCTION IN RABBITS WITH MYOCARDIAL ISCHEMIA. FANG ZHIBIN ET AL. **journal of tcp.** 2002;22(1):47-50 (eng).

252- gera: 101033/di/re
OPIOID SIGNALLING IN THE RAT ROSTRAL VENTROLATERAL MEDULLA. GUYENET PG ET AL. **clin exp pharmacol physiol.** 2002;29(3):238-42 (eng).

253- gera: 106042/di/ra
[EFFECT OF F ACUPUNCTURE AT "NEIGUAN" (PC 6) ON ISCHEMIC MYOCARDIAL BFGF AND TGF-B1 EXPRESSION IN RATS]. XIAO YANLING, DU YUANHAO, LI TAN, ET AL. **acupuncture research.** 2002;27(2):130 (chi).
Objective : To research the effect of acupuncture of "Neiguan" (PC 6) on bFGF and TGF-B1 (angiogenic related factors) expression in ischemic myocardium in the rat. Methods : 72 Wistar rats were randomized into normal group, sham-operation group, model group, and acupuncture group. The later 2 groups were further divided into 2 hr, 2- day, 1-week, 2-week and 3-week subgroups, with 6 cases in each subgroups and the former two groups. Myocardial ischemia (MI) model was established by occlusion of the anterior descending branch of the left coronary artery. Bilateral "Neiguan" (PC 6) were punctured and stimulated with handle manipulation (I min) and electroacupuncture apparatus (WQ10CZ , 40 Hz, positive pulse amplitude 4 V and duration of 5 min). bFGF and TGF-B1 expression was shown by staining the ischemic myocardium sections by immunohistochemical method and observed under light microscope. Results : The bFGF and TGF-B1 were not expressed until 2 hours after coronary vessel was ligated. 2 days after MI bFGF expression level was the least, while TGF-B1 expression peaked. One week after MI, bFGF expression level increased compared with that of 2-day subgroup, and distributed around the capillary vessels, myocardial cellular membrane and cellular plasma. Three weeks after MI, lighter TGF-B1 expression was found and distributed in myocardial cellular, cellular plasma and the vascular wall, which reduced compared with that at 2 days, while lighter bFGF expression distributed in the blood vessels that had not become matured . The variation between bFGF and TGF-B1 expression showed an antagonistic effect. In acupuncture subgroups, bFGF expression was much heavier than that of the model group at various same phases, furthermore the formation of blood vessels of acupuncture group was more rapidly and entirely than that of model groups. The TGF-B1 expression in acupuncture subgroups was opposite to bFGF expression. It displayed that acupuncture of "Neiguan" (PC 6) could promote generation of bFGF and had an inhibitory effect on TGF-B1 Conclusion : Acupuncture of "Neiguan" (PC 6) may promote formation of newborn blood vessels via modulating expression of angiogenic related factors bFGF and TGF-B1 in the ischemic myocardium.

254- gera: 106822/di/ra
[PROTECTION EFFECT OF ELECTRO-ACUPUNCTURE ON HEART FUNCTION OF MYOCARDIAL ISCHEMIA REPERFUSION IN RABBITS]. ZHU ZE-HUA, LU GUANG-RONG, LIU CHU-YU. **journal of yunnan college of traditional chinese medicine.** 2002;25(6):1 (chi).

255- gera: 133928/di/ra
EFFFECT OF ELECTROACUPUNCTURE ON MYOCARDIAL ISCHEMIA INDUCED CHANGES OF CARDIAC SYMPATHETIC ACTIVITY AND INVOLVEMENT OF SPINAL 8-OPIOID, NMDA- AND NON-NMDA RECEPTOR IN THE RABBIT. LIU JUN-LING, ET AL. **world journal of acupuncture-moxibustion .** 2003;13(4):28 (eng*).
Aim: To observe the effect of electroacupuncture (EA) on acute myocardial ischemia (AMI) induced changes of cardiac sympathetic discharges and the effects of some related receptors in the spinal cord. Methods: A total of 53 rabbits anesthetized with mixture solution of 25% urethane (420 mg/kg) and 1.5% chloralose (50 mg/kg) were used in this study. AMI was induced by occlusion of the ventricular branch of the left coronary artery. Discharges of the left cardiac sympathetic nerve were recorded by using a bipolar platinum electrode. Bilateral "Ximen"(PC 40) and "Kongzhui"(LU 6) were stimulated electrically by using an EA therapeutic apparatus or an electrical stimulator. DPDPE 6-opiate receptor agonist, 20 nmol, 10 uL, n=8) , Naltrindole Hydrochloride (&-opiate receptor antagonist, 20 nmol, 10 L, n= 8), DAP5 (NMDA receptor antagonist, 5 nmol, 10 L, n= 9)

and CNQX (non-NMDA receptor antagonist, 5 nmol, 10 L, n=8) were respectively injected into the thoracic subarachnoid space of the spinal cord in different groups, followed by observing their effects on changes of sympathetic activity evoked by EA of the abovementioned acupoints. Results: 1D After AMI, sympathetic discharges increased (200.56 ± 79.89 %) in 10 cases and decreased (-59.34 ±7.06%) in other 9 cases in comparison with their individual basal values. After EA of "Ximen" (PC 4) and "Kongzhui"(LU 6), AMI-induced increase and decrease changes of the sympathetic activity were suppressed significantly, but the effect of EA of LU-6 was weaker than that of EA of PC-4. ®2 Following EA of PC-4 and LU-6, sympathetic discharges increased significantly in 2 and 4 cases, decreased apparently in 7 and 3 cases, and had no striking changes in 1 and 3 cases respectively. The mean reaction threshold of sympathetic activity after EA of PC-4 and LU-6 were 2. 1 ±0.65 mA and 3.28± 1. 13 mA separately. 03 After pre-treatment with DPDPE, the reaction threshold of the cardiac sympathetic activity to EA of PC-4 elevated significantly (35.89±6.12%) ; while after pre-treatment with Naltrindole, this reaction threshold decreased considerably (84.88±26.58%). Following intrathecal injection of DAP5 (n =9) and CNQX (n=9) , the reaction thresholds of the cardiac sympathetic activity to EA of PC-4 increased obviously (142.06±60.27% and 112.54±28.58% separately). It suggests that spinal 6-opioid receptor, NMDA and non-NMDA receptors are involved in EA induced changes of sympathetic activity. Conclusion:) EA could regulate AMI induced changes of cardiac sympathetic activity; and © spinal 6-opioid receptors, NMDA and non-NMDA receptors participate in the effect of EA on the cardiac

256- gera: 117386/nd/re
PRESSOR EFFECT OF ELECTROACUPUNCTURE ON HEMORRHAGIC HYPOTENSION. SYUU Y, MATSUBARA H, HOSOGI S, SUGA H. **am j physiol regul integr comp physiol.** 2003;285(6):R1446-52 (eng).
Neiguan (PC-6) is a traditional acupoint in each forearm and overlies the trunk of the median nerve. Previous studies show that electroacupuncture (EA) at the Neiguan acupoint could improve not only myocardial ischemic dysfunction by inducing a depressor response but also recover hemorrhagic hypotension by inducing a pressor response. However, their physiological mechanisms are not yet elucidated. We investigated the pressor effect of Neiguan EA and its mechanism by focusing on left ventricular (LV) performance in a canine hemorrhagic hypotension model. We hemorrhaged 36 anesthetized and thoracotomized mongrel dogs and decreased LV end- systolic pressure (ESP) to approximately 70 mmHg (35% decrease). We obtained LV pressure-volume (P-V) data with a micromanometer catheter and a conductance catheter. One-hour Neiguan EA significantly recovered the decreased ESP, end-diastolic volume, and stroke volume by 32 +/- 13%, 27 +/- 13%, and 39 +/- 17%, respectively (P < 0.05), without changing heart rate and the slope of the end-systolic P-V relation. Neiguan EA inhibited a hemorrhage-induced increase in plasma catecholamines. However, vecuronium (neuromuscular blocking agent) administration abolished the antihypotension effect of Neiguan EA. Furthermore, Neiguan EA was much more effective than a nonacupoint thigh EA. We conclude that Neiguan EA achieved the antihypotension effect by improving LV filling of the hemorrhage-depressed LV performance despite the inhibition of the hemorrhage-increased plasma catecholamines. This pressor effect seemed to accompany an increased venous return by Neiguan EA-increased vasomotor tone and muscle pump. This study demonstrated a scientific basis for the therapeutic efficacy of acupuncture in the treatment of hemorrhagic hypotension and shock.

257- gera: 124377/di/ra
[AN INVESTIGATION ON THE EFFECTS OF NO AND NOS ON MYOCARDIAL ISCHEMIC REPERFUSION INJURY INDUCED IN RATS FOLLOWING ELECTROACUPUNCTURE TO NEIGUAN]. WANG CHAO, YAN JIE, CHANG XIAORONG, ET AL. **journal of traditional chinese medicine university of hunan.** 2003;23(5):54 (chi*).

258- gera: 139155/di/ra
[EFFECT OF ACUPUNCTURING SHUIQUAN ON HYPERTENSION MOUSE' S ANGIOTENSIN II]. JI ZHONG, MA PING. **journal of zhejiang college of tcm.** 2004;28(6):55 (chi).

259- gera: 134953/di/ra
[EFFECT OF JOKSAMNI COMBINATION ON NADPH-DIAPHORASE NEURONAL NITRIC OXIDE SYNTHASE,NEUROPEPTIDE Y AND VASOACTIVE INTESTINAL PEPTIDE IN THE CEREBRAL CORTEX OF SPONTANEOUSLY HYPERTENSIVE RAT]. JUNG IN-GY, LEE JAE-DONG AND KIM CHANG-HWAN . **journal of the japan society of acupuncture and moxibustion.** 2004;54(2):149(31) (jap*).
[Objective] The aim of this study was to investigate the effects of Joksamni (ST36) combination on NADPHdiaphorase, neuronal nitric oxide synthase (nNOS), neuropeptide Y (NPY) and vasoactive intestinal peptide (VIP) in the cerebral cortex of spontaneously hypertensive rat. [Methods] The experimental groups were divided into four groups: Normal, Joksamni (ST36), Joksamni (ST 36) + Eumneungcheon (SP9), and Joksamni (ST36) + Gokji (LIII). Needles were inserted into acupoints at the depth of 0.5 cm with basic insertion method. Electroacupuncture was done under the condition of 2 HZ electrical biphasic pulses with continuous rectangular wave lasting for 0.2ms until the muscles produced visible contractions. Such stimulation was applied continuously for 10 minutes, 1 time every 2 days for 10 sessions of treatments. Thereafter we evaluated changes in NADPH-d positive neurons histochemically and changes in nNOS, NPY and VIP positive neurons immunohistochemically. [Results] The optical densities of NADPH-d positive neurons of the Joksamni (ST36) + Eumneungcheon (SP 9) group in all areas of cerebral cortex and Joksamni (ST36) + Gokji (LI11) group in primary somatosensory cortex, visual cortex, auditory cortex, perirhinal cortex were significantly increased as compared to the Joksamni (ST36) group. The optical densities of NADPH-d positive neurons of the Joksamni (ST36) + Gokji (LI11) group were significantly decreased as compared to the Joksamni (ST36) + Eumneungcheon (SP9) group with the exception of primary somatosensory cortex. The optical densities of nNOS positive neurons of the Joksamni (ST36) + Eumneungcheon (SP9) group in all areas of cerebral cortex and Joksamni (ST36) + Gokji (LI11) group in auditory cortex, perirhinal cortex, insular cortex were significantly increased as compared to the Joksamni (ST36) group. The optical densities of nNOS positive neurons of the Joksamni (ST36) + Gokji (LI11) group were significantly decreased in all areas of cerebral cortex as compared to the Joksamni (ST36) + Eumneungcheon (SP9) group. The optical densities of NPY positive neurons of the Joksamni (ST36) + Gokji (LI11) group were significantly decreased in primary motor cortex, primary somatosensory cortex, cingulate cortex as compared to the Joksamni (ST 36} and Joksamni (ST36) + Eumneungcheon (SP9) groups. The optical densities of VIP positive neurons of the Joksamni (ST36) + Eumneungcheon (SP9) group were significantly increased in all areas of cerebral cortex except f or cingulate cortex as compared to the Joksamni (ST36) group. The optical densities of VIP positive neurons of the Joksamni (ST36) + Gokji (LIII) group were significantly decreased in auditory cortex, cingulate cortex, perirhinal cortex as compared to the Joksamni (ST36) + Gokji (LILI) group were significantly decreased in all areas of cerebral cortex as compared to t Joksamni (ST36) + Eumneungcheon (SP9) group. [Conclusions] The result demonstrated that electroacupuncture on Joksamni (ST36) and its combination chan the activities of the NO system and peptidergic system in the cerebral cortex of SHR and that acupoint combination is one of the important parameters for the effects.Reprinted from The Journal of Korean Acupuncture and

260- gera: 134106/di/ra
[EFFECTS OF ACUPOINT-APPLICATION OF "QIANG XIN

TIE" ON VASCULAR STRUCTURE, SERUM HIGH BLOOD LIPID AND HIGH CHOLESTEROL CONTENTS IN ARTHEROLEROSIS RABBITS]. LIU JUN-LING, LUO MING-FU, WANG YOU-JING, ET AL. **acupuncture research.** 2004;29(2):111 (chi*).

261- gera: 131662/di/ra
MEDULLARY VENTROLATERAL NITRIC OXIDE MEDIATES THE CARDIAC EFFECT OF ELECTROACUPUNCTURE AT "NEIGUAN" ACUPOINT ON ACUTE MYOCARDIAL ISCHEMIA IN RATS. LU JUAN-XIU, ZHOU PEI-HUA, WANG JIN, LIXIA, CAO YIN-XIANG, ZHOU XU, ZHU DA-NIAN. **acta physiologica sinica.** 2004;56(4):503 (eng*).
Experiments were performed on male Sprague-Dawley (SD) rats anesthetized with a mixture of urethane and chloralose. A rat model of acute myocardial ischemia (AMI) was made by ligation of the left anterior descending branch of the coronary artery (LAD). After the LAD ligation, the ischemia area of the left ventricular wall became somewhat pale immediately. Under a light microscope, the pathological examination revealed that all the cells were swollen and in red color when the cardiac section was stained with hematoxylin basic fuchsin picric acid (HBFP), cated a typical change in the myocardial ischemia. In the AMI model, it was found that cardiac functions were markedly attenuated, such as decreases in the heart rate (HR), mean arterial pressure (MAP), left ventricular systolic pressure (LVSP), maximal rate for left ventricular pressure rising and declining (tdp/dt a), velocity of contractile element (VCE) and total area of cardiac force loop (L,,), and an increase in the left ventricular end diastolic pressure (LVEDP). In such AMI rats, application of electroacupuncture (EA) at "Neiguan" acupoints (Pe 6) for 20 min could obviously improve the above-mentioned cardiac functions. After microinjection of nitro-L-arginine (L-NNA), an inhibitor of nitric oxide synthase (NOS), was made into the rostral ventrolateral medulla (RVLM), the curative effect of EA on myocardial ischemia was reduced significantly or abolished, while after microinjection of normal saline of the same volume was made into the RVLM, the improving effect of EA remained. These results suggest that the effect of EA on myocardial ischemia is possibly mediated by the nitric oxide (NO) in the RVLM.

262- gera: 136318/di/ra
ELECTROACUPUNCTURE ON PC6 (NEIGUAN) ATTENUATES ISCHEMIA/REPERFUSION INJURY IN RAT HEARTS. MENG-TING TSOU, CHENG-HSIUNG HUANG AND JEN-HWEY CHIU. **american journal of chinese medicine.** 2004;32(6):951 (eng).
The use of somato-visceral regulation has been proposed as a treatment for a wide range of diseases. The aim of this study was to test the hypothesis that through somato-visceral regulation, ischemia-reperfusion (I/R) injury to the myocardium can be avoided by electroacupuncture (EA) on PC6 (Neiguan). Electroacupuncture on PC6 (Neiguan) was brought about by the application of metal needles over the bilateral median nerve at a point 1.5 cm proximal to the palm crease in male Spraque-Dawley rats. The animals were randomized into two groups: (1) prevention group with preconditioning by the application of EA on PC6 (n=13); and (2) treatment group with EA on PC6 during I/R injury (n=10). The protection against myocardial injury was blocked by different mechanisms: (1) severing of the bilateral median nerve (n=10), (2) bilateral vagotomy (n=10), and (3) intravenous naloxone injection (n=10). The hemodynamic parameters (mean artery pressure and heart rate), duration of arrhythmia, mortality rate and cardiac enzymes were evaluated in these groups. The results showed that there were significant reductions in cardiac enzymes, the duration of arrhythmia and mortality rate in rats that were either preconditioned or treated with EA on PC6, compared with those that did not undergo EA on PC6 (P<0.05). The cardioprotective effects were blocked by different procedures (P>0.05).We conclude that EA on bilateral PC6 (Neiguan) prevents and attenuates I/R injury to the heart, and that this approach may provide an applicable and preventative alternative for patients with ischemic heart disease.

263- gera: 134954/di/ra
[CHANGES IN MUSCULAR BLOOD FLOW INDUCED BY ACUPUNCTURE IN RAT ISCHEMIC HINDLIMB]. ODA TSUYOSHI ET AL. **journal of the japan society of acupuncture and moxibustion.** 2004;54(2):163(45) (jap*).
[Objective] The effects of acupuncture on muscular blood flow, muscular weight, and muscular dynamic were investigated in the rat hindlimb with induced hypoemia. In addition, the optimal conditions for acupuncture in the model were investigated. [Methods] In male SD rats, the right femoral artery was cut, and a No. 20 40-mm stainless needle was inserted about 3-5 mm into the anterior tibial muscle of the ischemic hindlimb for acupuncture. During ac puncture, The needle was indwelled or electric current was passed, and various stimulations (5h/day, lh) times/day, 15 min X 5 times/day, 1 h/day, and 15 min/day) were applied for 5 consecutive days. Seven days,: ter cutting the artery, blood flow was measured by the radioactive microsphere method, and the degree muscular atrophy was investigated by the weight ratio of the ischemic hindlimb to the contralateral heals l limb, and findings in the intact, hypoemia, hypoemia + indwelled needle, and hypoemia + various current groups were compared. In addition, the anterior tibial muscle was stained to observe the condition of must lar fibers. [Results and Discussion] In the ischemic group, muscular blood flow was decreased. In the hypoemia+curre Jill groups, blood flow was increased. In the groups that received electric current for a prolonged period, 5h/day and 1 h X 5 times/day, the blood flow was increased but the muscular weight ratio was decreased. Howere in the group that received stimulation for 15min X 5 times/day, the muscular blood flow was markedly high that those in the other groups, and the muscular weight ratio was not changed, showing that muscular atrophy did not occur. On staining, capillary neovascularization and VEGF production were greater than those in d T hypoemia group, suggesting that these factors were closely involved in the increase in blood flow. M r

264- gera: 135410/di/ra
[THE REVERSAL MECHANISM OF ACUPUNCTURE ON DEPRESSOR RESPONSE TO ANGIOTENSIN-(1-7) IN THE CAUDAL VENTROLATERAL MEDULLA OF RATS]. WANG J, SHEN LL CAO YX, ET AL . **shanghai journal of acupuncture and moxibustion.** 2004;23(9):35 (chi*).
Purpose To investigate the efficacy of needling Xi-Cleft points as main therapy in cooperation with point injection of Angelicae for treating the acute stage of lumbar intervertebral disc protrusion. Method The acute stage of lumbar intervertebral disc protrusion was treated by needling Xi-Cleft points as main therapy and the effects were compared with those of routine acupuncture therapy. Point injection of Angelicae was added for cooperation in both groups. Results The total effective rate was significantly higher in the treatment group than in the control group (P<O. 01). Visual analog score (VAS) showed that the curative effect was significantly better in the treatment group than in the control group (P<0. 01). Conclusion Acupuncture can relieve the pain in patients with lumbar intervertebral disc protrusion. The effect of needling Xi-Cleft points as a main treatment in cooperation with point injection is better than that of routine acupuncture therapy in cooperation with point injection.

265- gera: 137268/di/ra
[INFLUENCE OF PUERARIN ON THE CHANGE OF LACTIC DEHYDROGENASE ACTIVITY IN MYOCARDIAL ISCHEMIA/REPERFUSION INJURY IN RABBITS]. WANG WAN -TIE, SHEN BING-QUAN, JIN KE -HE, ET AL. **chinese journal of integrated traditional and western medicine in intensive and criti.** 2004;11(6):349 (chi*).
Objective: To explore the changes of lactic dehydrogenase (LDH) activity during myocardial ischemia/reperfusion injury (MIRE) in rabbits, and investigate the protective effect of traditional Chinese medicine on myocardium as well as its mechanisms. Methods : Thirty rabbits were randomly divided into three groups (n=10 in each group): control group, 0. 9% NaCl group, puerarin and glucose injection (PGI) group. Using a MIRI model, the LDH activity, thromboxane B2 (TXB2) content '6 keto prostaglandin F1delta (6 keto-PGF

delta) concentration and TXB2/6 keto PGF1 delta (T/K) ratio in serum and myocardium tissue were measured in rabbits. Results : In O. 9% NaCl group, LDH activity increased progressively in serum during MIRI (P<0. 05 or P<0.01), LDH activity in myocardial tissue decreased remarkably (P<0.01), and T/K ratio in myocardial tissue increased significantly (P<0. 01). PGI had the effect of decreasing LDH activity in serum that increased during MIRI, decreasing LDH activity and T/K ratio in myocardium, the differences were significant (P<0.05 and P<0.01). Conclusion: PGI shows a protective effect on myocardium by correcting thromboxane A2 and prostaglandin I2 imbalance and modulating

266- gera: 131070/di/ra

[PROTECTIVE EFFECT OF ELECTROACUPUNCTURE COMBINED SALVIA MILTIORRHIZA ON ISCHEMIA/REPERFUSION MYOCARDIUM]. WANG ZHEN-HONG, WANG XIANG-RUI. **chinese journal of integrated traditional and western medicine in intensive and criti.** 2004;11(3):137 (chi*).

Objective: To observe the effect of electroacupuncture (EA) and salvia miltiorrhiza on heat - shock protein (Hsp70) mRNA expression in ischemia/reperfusion myocardium and the content of dopamine in blood, and investigate the effect between EA and salvia miltiorrhiza. Methods: Twenty - four rabbits were randomly divided into four groups: control group, EA group, salvia miltiorrhiza group, EA+ salvia miltiorrhiza group (n=6 in each group). The ischemia/reperfusion model was established by clipping descending branch of coronary artery for 30 minutes then loosing it for 2 hours. EA and salvia miltiorrhiza were accepted in different groups. The blood content of dopamine was detected before ischemia, 30 minutes ischemic and 2 hours reperfusion. Ischemic and non -ischemic myocardium tissues were sampled to observe the expressions of Hsp70 mRNA by reverse transcription - polymerase chain reaction (RT - PCR) method. The influence of EA and salvia miltiorrhiza on the expression of Hsp70 mRNA and blood levels of dopamine were observed. Results: In EA group and salvia miltiorrhiza group, the expression of Hsp70 mRNA was higher and the content of dopamine was lower than those in control group (all P<0. 05); and the changes in EA+salvia miltiorrhiza group were more obvious than EA group and salvia miltiorrhiza group (both P < 0. 05). Conclusion: EA and salvia miltiorrhiza can raise Hsp70 mRNA expression and inhibit the increase of dopamine content in blood after ischemia/reperfusion. There are synergistic actions between electroacupuncture and salvia miltiorrhiza.

267- gera: 124271/di/ra

[EXPERIMENTAL STUDY ON THE EFFECT OF ELECTROACUPUNCTURING THE HEART CHANNEL, THE SMALL INTESTINE CHANNEL IN TREATING RATS WITH ACUTE MYOCARDIAL ISCHEMIC, AND ON THE MECHANISM]. ZHOU MEIQI , ET AL. **journal of emergency in tcm.** 2004;13(1):37 (chi*).

268- gera: 134124/di/ra

[EFFECTS OF ELECTROACUPUNCTURE STIMULATION OF THREE SEGMENTS OF THE HEART MERIDIAN ON CARDIAC FUNCTION IN RABBITS WITH ACUTE MYOCARDIAL ISCHEMIA]. ZHOU MEI-QI, ZHOU YI-PING, WANG KE-MING, ET AL. **acupuncture research.** 2004;29(3):179 (chi*).

Objective: To probe the effects of electroacupuncture (EA) stimulation of three different segments (wrist, elbow and shoulder portions) of the Heart Meridian on the cardiac function in rabbits with acute myocardial ischemia (AMI). Methods: A total of 50 rabbits anesthetized with urethane (1 g/kg) were randomized into control group, model group, EA-wrist-segment group, EA-elbow-segment group and EA-shoulder-segment group, with 10 cases in each group. AMI was induced by intravenous injection of posterior pituitary hormone (2u/kg+ saline to 2 mL) . Three different segments of the Heart Meridian were punctured and stimulated electrically with ZYZ-1 EA-Therapeutic Apparatus separately. Left ventricular pressure (LVP), maximum rising rate (dp/dtmax) of LVP, the area of myocardial force loop (ACFL) and the maximal shortening velocity of myocardium (Vmax) were used as the indexes. Results: After AMI, LVP, dp/dtmax,ACFL and Vmax in model group decreased significantly in comparison with those of control group(P < 0.01) , while compared with model group, values of the 4 indexes of EA-wrist- segment group, EA-elbow-segment group and EA-shoulder-segment group were significantly higher(P <0.05—0. 01) , values of the 4 indexes of EA-wrist-segment group were all significantly higher than those of both EA-elbow- segment group and EA-shoulder-segment group (P<0.05) , but no significant differences were found between EA- elbow-segment group and EA-shoulder-segment group in these 4 indexes. Conclusion: EA stimulation of different segments of the Heart Meridian can improve performance of the ischemic heart and the wrist segment of this meridian has a representative role.

269- gera: 135646/di/re

AFFERENT MECHANISMS UNDERLYING STIMULATION MODALITY-RELATED MODULATION OF ACUPUNCTURE-RELATED CARDIOVASCULAR RESPONSES. ZHOU W, FU LW, TJEN-A-LOOI SC, LI P, LONGHURST JC. **j appl physiol.** 2004;5 nov: (eng*).

Despite the use of acupuncture to treat a number of heart diseases, little is known about the mechanisms that underlie its actions. Therefore, we examined the influence of acupuncture on sympathoexcitatory cardiovascular responses to gastric distension in anesthetized Sprague-Dawley rats. Thirty min of Low frequency, low current (1-2 mA, 2 Hz) electroacupuncture (EA), at P 5-6, S 36-37 and H 6-7 overlying the median, deep peroneal nerve and ulnar nerves significantly decreased reflex pressor responses by 40, 39 and 44%, respectively. In contrast, sham acupuncture involving needle insertion without stimulation at P 5-6 or 30 min of EA at LI 6-7 acupoints overlying the superficial radial nerve did not attenuate the reflex. Similarly, EA at P 5-6 using 40 or 100 Hz stimulation frequencies did not inhibit the reflex. Compared to EA at P 5-6, EA at two sets of acupoints including P 5-6 and S 36-37 did not lead to larger inhibition of the reflex. Two min of manual acupuncture (MA, 2 Hz) at P 5-6 every 10 min for 30 min inhibited the reflex cardiovascular pressor response by 33%, a value not significantly different than 2 Hz EA at P 5-6. Single unit afferent activity was not different between electrical and manual stimulation. However, 2 Hz electrical stimulation (ES) activated more somatic afferents than 10 or 20 Hz ES. These data suggest that, although the location of acupoint stimulation and the frequency of stimulation determine the extent of influence of EA, there is little difference between low frequency electro- and manual acupuncture at P 5-6. Furthermore simultaneous stimulation using two acupoints that independently exert strong effects did not lead to an additive or a facilitative interaction. The similarity of the responses to EA and MA and the lack of cardiovascular response to high frequency EA appear to be largely a function of somatic afferent responses.

270- gera: 140367/di/ra

EFFECT OF DESTRUCTION OF NTS AND PVN ON NEIGUAN (PC 6)-ELECTROACUPUNCTURE-INDUCED IMPROVEMENT OF ISCHEMIC MYOCARDIAL CELLULAR MEMBRANE POTENTIALS IN RABBITS CHEN ZE-BIN WANG SHU-JU WANG YA-WEN WU XU-PING WANG HUA. **world journal of acupuncture and moxibustion.** 2005;15(1):33 (eng).

Objective: To observe the influence of electrolytic destruction of nucleus solitary tract (NTS) and hypothalamic paraventricular nucleus (PVN) on the effect of electroacupuncture (EA) in improving ischemic myocardial cellular transmembrane action potential (TMAP). Methods: 38 Japanese breed big-ear white rabbits (anesthetized with 20% Urethane, 4 mL/kg) were randomly divided into acute myocardial ischemia (AMI) group (n =8), PVN destruction group (= 12) and PVN+ NTS destruction group (n = 18). AMI model was established by occlusion of the descending anterior branch (DAB) of the coronary artery. TMAP of myocytes was recorded by using a glass microelectrode which was fixed to a suspending spring silver wire. Bilateral "Neiguan"(PC 6) in all the 3 groups were punctured and stimulated electrically by using parameters of continuous

waves, frequency of 7 Hz, intensity of 6 mA and duration of 30 minutes. Results: After AMI, ECG-ST elevated significantly while APA lowered, APD50 and APD90 shortened clearly in comparison with those of pre-AMI in the 3 groups. Compared with AMI group, ECG-ST values of PVN destruction group and PVN+NTS destruction group were significantly higher (P<0.050.01), while APA, APD50 and APD90 all significantly lower in all the recording time courses(P< 0.05). The facts displayed that electrolytic destruction of PVN and PVN+NTS could produce ischemic myocardial injury and reduce the protective effect of EA on ischemic myocardial cells. Comparison between PVN destruction and PVN + NTS groups showed that all the 4 indexes of the later group were evidently worse than those of the former group (P < 0.05) , suggesting after destruction of these two nuclei, the effect of EA was worsened further. Conclusion: Electrolytic destruction of PVN and NTS weakens the protective effect of EA on ischemic myocardial cells, both NTS and PVN take part in the effect of EA of "Neiguan"(PC 6) Point in improving ischemic myocardium.

271- gera: 140066/di/ra
[PROTECTIVE ACTION OF ACUPUNCTURE ON NERVE CELL AND MYOCARDIAL ULTRASTRUCTURE INJURY IN RATS WITH EXPERIMENTAL INTRACEREBRAL HEMORRHAGE]. FU LI-XIN, ZHAO JIAN-GUO, ZHAO CHENG-BIN, ET AL. **tianjin journal of tcm.** 2005;22(1):10 (chi*).
[Objective]To explore the pathological changes of myocardium after intracerebral hemorrhage and the protective action of acupuncture in rats. [Methods] Cerebral hemorrhage was induced by infusion of blood of themselves into the caudate nucleus of rats. The changes of myocardial morphology and the injury around hemorrhage area treated by different acupunctures were observed with light and electron microscopy. [Results] Intracerebral hemorrhage could result in myocardial and capillary injury. The acupuncture could improve the injury of myocardial ultrastructure and the regions around the intracerebral hemorrhage. [Conclusion]The acupuncture has protective action on injury of myocardial morphology and nerve cell in rats with experimental intracerebral

272- gera: 137935/di/ra
[RESEARCH ON THE FUNCTION OF VENTROLATERAL MEDULLA AND NUCLEUS PARAVENTRICULARIS IN THE EFFECT OF TRANSMEMBRANE POTENTIAL OF RABBIT'S ISCHEMIC MYOCARDIAL CELL BY ELECTROACUPUNCTURE AT NEIGUAN POINT]. WANG SHUJU, ET AL. **hubei journal of tcm.** 2005;27(3):3 (chi).

273- gera: 140440/di/ra
[EFFECT OF ELECTROACUPUNCTURE AT "NEIGUAN" (PC 6) ON EXPRESSION OF C-FOS GENE IN MYOCARDIUM OF THE RAT WITH ACUTE MYOCARDIAL ISCHEMIA.]. XIE FANG, LIANG XUN-CHANG, WU HONG JIN , ET AL. **chinese acupuncture and moxibustion.** 2005;25(5):355 (chi*).
Objective To explore the mechanism of electroacupuncture at "Neiguan" (PC 6) improving acute myocardial ischemia. Methods The rats were randomly divided into a sham operation group, a myocardial ischemia model group and a myocardial ischemia model plus electroacupuncture group. The acute myocardial ischemia model was developed by ligation of the descending anterior branch of the coronary artery, and electroacupuncture was given at bilateral "Neiguan" (PC 6). Serum myocardial enzymes was determined by biochemical method and the expression of c-fos mRNA in myocardium was detected by using reverse transcription polymerase chain reaction (RT-PCR). Results The activities of serum myocardial enzymes and the expression of c-fos mRNA in ischemic myocardium were significantly increased as compared with those in the sham operation group (P<0. 05) , and after electroacupuncture they were significantly decreased (P < 0.05). Conclusion The mechanism of electroacupuncture at "Neiguan" (PC 6) improving acute myocardial ischemia is possibly related with down-

274- gera: 136618/di/ra
[THE INFLUENCE OF INJECTING NALOXONE INTO PERIAQUEDUCTAL GRAY ON THE CURATIVE EFFECT OF SCALP ELECTROACUPUNCTURE IN EXPERIMENTAL ARRHYTHMITIQUE]. YOU XING-HONG, HU PING, HE CHENG-MIN, LI MEI-PING, WU FENG-HUA. **journal of clinical acupuncture and moxibustion.** 2005;21(1):57 (chi).
Objective: To study the central receptor mechanism of the curative effect of scalp electroacupuncture on lateral line 1 of forehead in experimental arrhythmic rats. Methods: Barium Chlorid – induced ex¬perimental arrhythmic model was induced in Wistar rats, scalp electroa¬cupuncture on the both area of lateral line 1 of forehead was then given. The effect of opioid – receptor antagonist naloxone(NX) injecting into periaqueductal gray (PAG) in the rats was investigated in the present study. The heart rate and the recovering time of BaCI2 – induced ar¬rhythmia rats were recorded. Results: Barium Chlorid – induced experimental arrhythmic rats showed a increase of heart rate and the recovering time as compared with that of the normal control group, NX produced insignificant change. Arrhythmia of the rats was ameliorated by scalp electroacupuncture (P < 0.01) , those effect was reversed by injecting opioid – receptor antagonist naloxone into periaqueductal gray(P < 0. 01) . Conclusion: The effect of scalp electroacupuncture in curating ar¬rhythmia of Barium chloride – induced rats was mediated by opioid

275- gera: 140368/di/ra
EFFECT OF ELECTROACUPUNCTURE ON ACONITINE-INDUCEDVENTRICULAR TACHYARRHYTHIMIA. ZENG QING OUYANG XING-BIAO " LI MAN LIU XIAO-CHUN GUAN XIN-MIN. **world journal of acupuncture and moxibustion.** 2005;15(1):39 (eng).
Objective: To investigate the effect of electroacupuncture (EA) on aconitine-induced ventricular tachyarrhythmia. Methods: Twenty SD rats anesthetized with chloral hydrate (300 mg/kg, i. p.) were evenly and randomly divided into control and EA groups. Ventricular arrhythmia was induced by intravenous infusion of 0.001% aconitine (i. v. , 3.5 mg/kg. 0.4 mL/min). EA (was applied to "Neiguan"(PC 6) and "Jianshi" for 30 min. ECG was recorded and analyzed to determine ventricular premature beat (APB) . ventricular tachycardia (VT) and ventricular fibrillation (VF) . Results: EA elevated the dose threshold of aconitine-induced VF (P<0.05) , delayed the occurrence of VT and VF (P<0.01) , prolonged the survival time and reduced the mortality of rats treated with aconitine (P<0.01) . Conclusion: EA can suppress aconitine-induced ventricular tachyarrhythmia.

276- gera: 141188/nl/re
REMINISCENCES OF MICROCIRCULATORY STUDIES ON APPLICATION OF ACUPUNCTURE NEEDLES TO THE RABBIT IN VIVO. ASANO M.. **clin hemorheol microcirc.** 2006;34(1-2)::89-96 (eng).
One of the favorites of traditional oriental medical treatments with Japanese people may be acupuncture for various intractable and/or chronic symptoms caused by external insults such as bruises and thermal injuries. The present paper was aimed to reminisce our previous two works using a rabbit ear chamber technique on effects of experimental acupuncture upon basic behaviors of cutaneous microcirculation and their pathophysiological changes induced by topical thermal stimulation in cutaneous microvascular system in vivo. Application of a single acupuncture needle (32-gauge, silver) to the back of rabbits, corresponding to Geshu (B17) in human beings, showed an increased microvascular blood flow in parallel with augmentation of vasomotion. Daily application of respective three larger (32-gauge, silver) and smaller (0.12 mm in diameter and 4 mm in length, stainless steel) needles to fixed places of the back and ear lobe showed a notable acceleration of recovery from pathophysiological microcirculatory changes induced by the thermal stimulation such as hemorrhages and stases in accordance with restoration of vasomotion. Some implications of vasomotion in the curative effects of experimental acupuncture treatments were discussed from the microcirculatory point of view in conjunction with the clinical efficacy in human beings

277- gera: 141074/di/re
EXCITATORY PROJECTIONS FROM ARCUATE NUCLEUS TO VENTROLATERAL PERIAQUEDUCTAL GRAY IN ELECTROACUPUNCTURE INHIBITION OF CARDIOVASCULAR REFLEXES. LI P, TJEN-A-LOOI SC, LONGHURST JC.. **am j physiol heart circ physiol.** 2006;jan 6: (eng).
We have shown that the modulatory effect of electroacupuncture (EA) on the blood pressure (BP) response induced by visceral organ stimulation is related to inhibition of cardiovascular neurons in the rostral ventrolateral medulla (rVLM) through a mechanism that involves opioids. This effect is long-lasting and may involve a long-loop neural supraspinal pathway, including the arcuate nucleus (ARC), which is an important site of opioid neurotransmitter synthesis. Therefore we evaluated the role of the hypothalamic ARC, and its interaction with the midbrain ventrolateral periaqueductal gray (vlPAG) in the EA-BP response. The gallbladder of alpha-chloralose anesthetized cats was stimulated to test for the influence of EA on splanchnic afferent-induced cardiovascular reflexes. Electrodes were placed around the splanchnic nerve (SN) and acupuncture needles were applied at P5-6 acupoints overlying the median nerve (MN). Electrophysiological recordings showed that spontaneous activity of ARC and vlPAG neurons was low (1.3+/-0.5 and 2.0+/-0.5 spikes/sec, respectively). We observed a gradation of responses of ARC neurons to stimulation of different acupoints, ranging from uniform responses of all neurons during stimulation of the P5-6, LI 4-11, H5-6 and St2-G2 located over deep nerves to fewer responses during stimulation of LI6-7 and G37-39 located over superficial nerves. Microinjection of the excitatory amino acid, D, L- homocysteic acid (DLH 4 nM, 50 nl), into the ARC augmented the responses of vlPAG neurons, while microinjection of kainic acid (KA 1 mM, 50 nl) to deactivate neurons in the ARC decreased vlPAG responses to SN stimulation. Thirty min of EA at P5-6 increased the SN-evoked discharge of vlPAG neurons (7.0+/-1.2 to 14.3+/-3.0 spikes/30 stimuli), a response that was blocked by microinjection of KA into the ARC. Microinjection of DLH into the ARC, like EA, inhibited (30 min) the reflex increase in BP induced by application of bradykinin (BK) to gallbladder, while microinjection of KA into the ARC blocked the inhibitory influence of EA at P5-6 on the BK- induced BP response. These results suggest that excitatory projections from the ARC to the vlPAG are essential to the EA inhibition of the reflex increase in BP induced by SN or gallbladder visceral afferent stimulation.

278- gera: 141111/di/re
ELECTROACUPUNCTURE-INDUCED PRESSOR AND CHRONOTROPIC EFFECTS IN ANESTHETIZED RATS. LIAO JM, TING H, LEE SD, YANG CH, LIOU YM, PENG ML, TSAI SJ, LIN CF, LIN TB.. **auton neurosci.** 2006;Feb 2: (eng).
The effects of electroacupuncture (Ea) on circulatory dynamics were investigated in anesthetized rats. The arterial blood pressure (BP) and the heart rate (HR) in response to Ea stimulations at the Tsusanli point (St-36) and the Hoku point (Li-4) were tested by a low frequency Ea (2 Hz; LFEa) and a high frequency Ea (20 Hz; HFEa) with stimulation intensities 20 times the motor threshold. Neither the HR nor the BP was affected when the Tsusanli point was stimulated. Whereas, Ea stimulations at the Hoku point elicit chronotropic and pressor effects. The patterns of pressor responses caused by the LFEa were different from that of an HFEa, i.e., the LFEa elicited a tonic effect, while an HFEa had a phasic one. The HFEa-induced pressor and chronotropic effects were attenuated, while the LFEa induced effects were completely blocked by an intravenous infusion of an alpha-adrenergic blocker (moxisylyte 0.2 mg/min/kg, i.v., for 20 min). A co-infusion with alpha-and beta-adrenergic blockers (propanolol 0.2 mg/min/kg, i.v., for 20 min) completely blocked the HFEa-induced pressor and chronotropic effects. We concluded that Ea stimulations, at the Hoku acupoint, with appropriate stimulation parameters can increase and maintain BP. Furthermore, the LFEa stimulation activates sympathetic vasomotor tone, whereas the HFEa stimulation causes an additional potentiation on the sympathetic drive to the heart.

279- gera: 141278/co/re
ELECTROACUPUNCTURE-INDUCED PRESSOR AND CHRONOTROPIC EFFECTS IN ANESTHETIZED RATS. LIAO JM, TING H, LEE SD, YANG CH, LIOU YM, PENG ML, TSAI SJ, LIN CF, LIN TB.. **auton neurosci.** 2006;124(1-2):18-25 (eng).
The effects of electroacupuncture (Ea) on circulatory dynamics were investigated in anesthetized rats. The arterial blood pressure (BP) and the heart rate (HR) in response to Ea stimulations at the Tsusanli point (St-36) and the Hoku point (Li-4) were tested by a low frequency Ea (2 Hz; LFEa) and a high frequency Ea (20 Hz; HFEa) with stimulation intensities 20 times the motor threshold. Neither the HR nor the BP was affected when the Tsusanli point was stimulated. Whereas, Ea stimulations at the Hoku point elicit chronotropic and pressor effects. The patterns of pressor responses caused by the LFEa were different from that of an HFEa, i.e., the LFEa elicited a tonic effect, while an HFEa had a phasic one. The HFEa-induced pressor and chronotropic effects were attenuated, while the LFEa induced effects were completely blocked by an intravenous infusion of an alpha-adrenergic blocker (moxisylyte 0.2 mg/min/kg, i.v., for 20 min). A co-infusion with alpha-and beta-adrenergic blockers (propanolol 0.2 mg/min/kg, i.v., for 20 min) completely blocked the HFEa-induced pressor and chronotropic effects. We concluded that Ea stimulations, at the Hoku acupoint, with appropriate stimulation parameters can increase and maintain BP. Furthermore, the LFEa stimulation activates sympathetic vasomotor tone, whereas the HFEa stimulation causes an additional potentiation on the sympathetic drive to the heart.

280- gera: 125833/di/ra
[ACUPUNCTURE-SERUM DECREASES CA2+ CONTENT IN CULTURED RAT MYOCARDIAL CELLS] LUO MF, LI CH, ZHANG JL, GUO Y, CHEN SP, LIU JL, LI RW.. **chinese acupuncture and moxibustion.** 2006;26(5):367-70. (chi).
OBJECTIVE: To explore whether humoral factors play a role in the mechanisms of acupuncture. METHODS: Primary culture of myocardial cells of neonatal rats were carried out. Five days later, they were labeled by fluorescent molecular probe Fluo-3AM. Changes of Ca2+ contents in the cultured myocardial cells after addition of the normal rat serum or acupuncture-serum of the rat who received acupuncture at "Neiguan" (PC 6) and Jianshi (PC 5), were dynamically observed by a confocal laser scanning microscopy. RESULTS: After addition of normal serum of the rat, the intracellular Ca2+ level increased to a certain degree, and then gradually tended to stability, which was significantly decreased by addition of the acupuncture-serum ($P < 0.01$). CONCLUSION: The serum of the rat who received acupuncture at acupoints can decrease the Ca2+ level in cultured myocardial cells, which provides a direct evidence for serum factors involving in acupuncture mechanism.

281- gera: 141142/di/re
SHORT-TERM ELECTROACUPUNCTURE AT ZUSANLI RESETS THE ARTERIAL BAROREFLEX NEURAL ARC TOWARD LOWER SYMPATHETIC NERVE ACTIVITY. MICHIKAMI D, KAMIYA A, KAWADA T, INAGAKI M, SHISHIDO T, YAMAMOTO K, ARIUMI H, IWASE S, SUGENOYA J, SUNAGAWA K, SUGIMACHI M.. **am j physiol heart circ physiol.** 2006;feb 24: (eng).
Although electroacupuncture reduces sympathetic nerve activity (SNA) and arterial pressure (AP), t he effects of electroacupuncture on the arterial baroreflex remain to be systematically analyzed. We investigated the effects of electroacupuncture of Zusanli on the arterial baroreflex using an equilibrium diagram comprised of neural and peripheral arcs. In anesthetized, vagotomized, and aortic-denervated rabbits, we isolated carotid sinuses and changed intra-carotid sinus pressure (CSP) from 40 to 160 mmHg in increments of 20 mmHg per minute while recording cardiac SNA and AP. Electroacupuncture of Zusanli was applied with a pulse duration of 5 msec and a frequency of 1 Hz. An electric current 10 times the minimal threshold current required for

visible muscle twitches was used, and was determined to be 4.8 +/- 0.3 mA. Electroacupuncture for 8 min decreased SNA and AP (n=6). It shifted the neural arc (i.e. CSP-SNA relationship) to lower SNA, but did not affect the peripheral arc (i.e. SNA-AP relationship) (n=8). SNA and AP at the closed-loop operating point, determined by the intersection of the neural and peripheral arcs, decreased from 100 +/- 4 to 80 +/- 9 a.u. and from 108 +/- 9 to 99 +/- 8 mmHg (each, P<0.005), respectively. Peroneal denervation eliminated the shift of neural arc by electroacupuncture (n=6). Decreasing the pulse duration to less than 2.5 msec eliminated the effects of SNA and AP reduction. In conclusion, short-term electroacupuncture resets the neural arc to lower SNA, which moves the operating point toward lower AP and SNA under baroreflex closed-loop conditions.

282- gera: 143176/di/ra
[THE EFFECT OF THE QUALITY OF CK IN BLOOD SERUM OF RATS THAT ARE WITH MYOCARDIAL ISCHEMIA AND REPERFUSION INJURY ON THE ACUPUNCTURE PRECONDITIONING]. SONG CHUN – YAN, ZHAO YU – HUI, MA DAN, ET AL. **journal of clinical acupuncture and moxibustion.** 2006;23(10):49 (chi).

283- gera: 141086/di/re
MIDBRAIN VLPAG INHIBITS RVLM CARDIOVASCULAR SYMPATHOEXCITATORY RESPONSES DUIRNG ELECTROACUPUNCTURE. TJEN-A-LOOI SC, LI P, LONGHURST JC.. **am j physiol heart circ physiol.** 2006;jan 20: (eng).
The periaqueductal gray (PAG) is an important integrative region in the regulation of autonomic outflow and cardiovascular function and may serve as a regulatory center as part of a long-loop pathway during somatic afferent stimulation with acupuncture. Since the ventrolateral PAG (vlPAG) provides input to the rostral ventrolateral medulla (rVLM), an important area for electroacupuncture (EA) regulation of sympathetic outflow, we hypothesized that the vlPAG plays a role in the EA-related modulation of rVLM premotor sympathetic neurons activated during visceral afferent stimulation and autonomic excitatory reflexes. Cats were anesthetized, ventilated, and heart rate and mean blood pressure were monitored. Stimulation of splanchnic nerve by a pledget of filter paper soaked in bradykinin (BK, 10 microg/ml) every 10 min on the gallbladder induced consistent cardiovascular reflex responses. Bilateral stimulation with EA at acupoints over the pericardial meridian (P5-6) situated over the median nerve reduced the increases in blood pressure from 34+/-3 to 18+/-5 mmHg for a for a period of time that lasted for 60 min or more. Unilateral inactivation of neuronal activity in the vlPAG with 50-75 nl of kainic acid (KA, 1 mM) restored the blood pressure responses from 18+/-3 to 36+/-5 mmHg during BK-induced gallbladder stimulation, an effect that lasted for 30 min. In the absence of EA, unilateral microinjection of the excitatory amino acid d,l-homocysteic acid (DLH, 4 nM) in the vlPAG mimicked the effect of EA and reduced the reflex blood pressure responses from 35+/-6 to 14+/-5 mmHg. Responses of 21 cardiovascular sympathoexcitatory rVLM neurons, including 12 that were identified as premotor neurons, paralleled the cardiovascular responses. Thus, splanchnic nerve-evoked neuronal discharge of 32+/-4 spikes/30 stimuli in six neurons was reduced to 10+/-2 spikes/30 stimuli by EA, which was restored rapidly to 28+/-4 spikes/30 stimuli by injection of 50 nl KA into the vlPAG. Conversely, 50 nl of DLH in the vlPAG reduced the number of action potentials of 5 rVLM neurons from 30+/-4 to 18+/-4 spikes/30 stimuli. We conclude that the inhibitory influence of EA involves vlPAG stimulation, which, in turn, inhibits rVLM neurons in the EA-related attenuation of the cardiovascular excitatory response during

284- gera: 141264/di/re
EFFECT OF DIFFERENT LLLT ON PITUITRIN-INDUCED BRADYCARDIA IN THE RABBIT. ZHAO L, SHEN XY, GAO JP, DING GH, WEI JZ, DENG HP, WANG L, ZHAO XY.. **lasers med sci.** 2006;may 9: (eng).
The objective of this paper was to observe the effect of low-level combined- or single-laser irradiation on bradycardia produced by pituitrin in rabbits. A combined-laser apparatus was made. A 10.6-mum CO(2) laser and a 650-nm semiconductor laser, transmitted by different optical fibers, converged to output and irradiate on the Neiguan (PC6) acupuncture point in rabbits with bradycardia produced by pituitrin. Thirty minutes after the model was set, the heart rates of the combined-laser Neiguan group made quicker recoveries than those of the model control group, the laser-control group, or the single-laser Neiguan group (P<0.05), and the heart rates of the single- CO(2)-laser Neiguan group were similar to those of the normal group (P>0.05). However, there were significant differences between the 650-nm-laser Neiguan group and the normal control group (P<0.05). The combined-laser irradiation certainly has a curative effect on bradycardia produced by pituitrin. A single CO(2) laser could accelerate the recovery from bradycardia, while single 650-nm-laser irradiation on the Neiguan acupoint does not

285- gera: 135873/di/ra
[PRELIMINARY STUDY ON THE EFFECT OF ELECTROACUPUNCTURE ON GS MRNA EXPRESSION IN TACHYARRHYTHMIA RATS]. ZHENG LI-YAN, CHEN YING, CAO ZHEN. **acupuncture research.** 2006;31(4):216 (chi*).
Objective: To explore the mechanism of electroacupuncture (EA) of "Neiguan" (PC 6) in relieving tach-yarrhythmia in rats. Methods: Forty Wistar rats were randomly divided into normal control, model, PC-6, and non-acupoint groups, with 10 cases in each group. Tachyarrhythmia model was established by sublingual venous injection of 0.002% Aconitine (1 mL/kg). EA (dense-sparse waves, 2/20 Hz, 2- 3 mA) was applied to bilateral "Neiguan" (PC 6) or non-acupoints (the prominence sites of the bilateral shoulder deltoid muscles) for 10 min after successful establishment of tachyarrhythmia. The heart rates were recorded, and myocardial stimulatory G-protein (Gs) mRNA expression was detected by using reverse transcription-polymerase chain reaction (RT-PCR) method. Results: After injection of Aconitine, the heart rate of model group increased sig-nificantly compared with normal control group (P < 0.01), and ventricular tachyarrhythmia and ventricular premature beat ap-peared; after acupuncture of "Neiguan" (PC 6), the rat' s heart recovered its normal sinus rhythm in PC-6 group, while the arrhythmia and heart rate of non-acupoint group had no marked recovery. Compared with normal control group, the heart rate of non-acupoint group increased apparently (P<0.01). In comparison with normal control group,the optical density (OD) values of Gs mRNA expression of model group and non-acupoint group increased significantly (P< 0.01); while compared with model group, the OD value of PC-6 group decreased considerably (P < 0.01), and no significant difference was found between model and non-acupointgroup in OD values (P>0 .05). It suggested that EA could downregulate the expression of Gs mRNA. Conclusion: EA of "Neiguan" (PC 6) can correct Aconitine induced increase of heart rate and tachyarrhythmia which is related to its effect in reduc-ing the upregulated expression of Gs mRNA in rats with tachyarrhythmia.

286- gera: 125903/di/ra
[STUDY ON EFFECTS OF ACUPUNCTURE AT THE HEART MERIDIAN ON GENE EXPRESSION PATTERN OF HEART IN RATS WITH ACUTE MYOCARDIAL ISCHEMIA] ZHOU MQ, ZHOU YP, WANG KM, HU L, WANG YL, CHEN YN.. **chinese acupuncture and moxibustion.** 2006;26(8):587-94. (chi).
OBJECTIVE: To reveal the mechanism of acupuncture at the Heart meridian in treatment of myocardial ischemia from gene level. METHODS: A model of acute myocardial ischemia was made by ligation of left anterior descending branch of the coronary artery. Changes of gene expression pattern of the Lung meridian group, the Heart meridian group and the model group in the heart were compared. RESULTS: Differential expression genes and expression sequence tags (ESTs) were 14 with signal log ratio > or = 1 and 20 with signal log ratio < or = -1, mainly included immunological and inflammatory reaction relative genes, cell signal transduction and transferrin relative genes, and others, in the Lung

meridian group vs the model group. Differential expression genes and ESTs were 20 with signal log ratio > or = 1 and 70 with signal log ratio < or = -1, mainly included ion channel and transport protein relative genes, cell apoptosis and stress reaction protein relative genes, metabolism relative genes, cell signal transduction and transferrin relative genes, DNA's binding, transcription and transcriptional factor relative genes, immunological and inflammatory reaction relative genes, and others, in the Heart meridian group vs the model group. CONCLUSION: In number and types of differential expression genes and ESTs with signal log ratio > or = 1 or < or = -1, the changes in the Heart meridian group vs the model group were obviously different from those in the Lung meridian group vs the model group, indicating that the Heart meridian has relative specificity in protecting against acute myocardial ischemia.

287- gera: 144309/di/ra

ACUPUNCTURE PRETREATMENT PROTECTS HEART FROM INJURY IN RATS WITH MYOCARDIAL ISCHEMIA AND REPERFUSION VIA INHIBITION OF THE BETA(1)-ADRENOCEPTOR SIGNALING PATHWAY. GAO J, FU W, JIN Z, YU X.. **life sci.** 2007;x:x (eng).

Our previous study showed that a cardioprotective effect was produced by pretreatment with acupuncture at bilateral Neiguan acupoints (PC6) and the effect of EA was diminished by propranolol, a nonspecific antagonist of beta-adrenoceptors (beta-ARs) which are the most powerful cardiac receptors, indicating an involvement of beta- ARs. The present study explored further the signaling mechanism underlying the cardioprotective effect of acupuncture pretreatment in rats subjected to myocardial ischemia and reperfusion (MIR). Myocardial ischemia was achieved by ligating the left anterior descending coronary artery and reperfusion by releasing the ligation. Adult rats were divided into three groups, namely, a normal control (NC) group, a group subjected to ischemia and reperfusion (IR) only, and a group given electro-acupuncture (EA) before IR. For EA, bilateral Neiguan points (PC6) of the rats were stimulated for 30 min once a day for 3 consecutive days. The ST segment of ECG, the ratio of infarct size over risk zone, and the contents of beta(1)-adrenoceptor (beta(1)-AR), Gsalpha protein and cAMP in ischemic myocardium were compared among the three groups. IR increased the elevation of ECG ST segment, myocardial infarct size, contents of beta(1)-AR, Gsalpha protein and cAMP. These effects were attenuated by EA pretreatment at bilateral Neiguan acupoints. In conclusion, the present results indicate that EA produces cardioprotective effect against IR which may be mediated via the beta(1)-AR-Gs-protein-cAMP pathway.

288- gera: 143261/nd/re

ELECTRO-ACUPUNCTURE DECREASES THE SUSCEPTIBILITY TO VENTRICULAR TACHYCARDIA IN CONSCIOUS RATS BY REDUCING CARDIAC METABOLIC DEMAND. LUJAN HL, KRAMER VA, DICARLO SE.. **am j physiol heart circ physiol.** 2007;38353:X (eng).

Reperfusion after a brief period of cardiac ischemia can lead to potentially lethal arrhythmias. Clinical observations and experimental work with animals suggest that acupuncture may have therapeutic effects for individuals with coronary heart disease, certain arrhythmias, and myocardial ischemia. Therefore, we tested the hypothesis that electro-acupuncture reduces the susceptibility to ischemia/reperfusion-mediated ventricular tachyarrhythmias. To test this hypothesis, we measured the susceptibility to ventricular tachyarrhythmias produced by three minutes of occlusion and reperfusion of the left main coronary artery in conscious rats under two experimental conditions: 1) control and 2) with electro-acupuncture. Acupuncture was simulated by electrically stimulating the median nerves (corresponding to the Jianshi-Neiguan (P 5-6) acupoints). Results document a significantly lower incidence of ventricular tachyarrhythmias with electro-acupuncture (2 of 8, 25%) relative to control (14 of 14, 100%) rats. The decreased susceptibility to tachyarrhythmias with electro-acupuncture was associated with a reduced cardiac metabolic demand (lower rate-pressure product and ST-segment elevation)

289- gera: 151012/di/re

ELECTROACUPUNCTURE DECREASES NITRIC OXIDE SYNTHESIS IN THE HYPOTHALAMUS OF SPONTANEOUSLY HYPERTENSIVE RATS. KIM JI, KIM YS, KANG SK, KIM C, PARK C, LEE MS, HUH Y. **neurosci lett..** 2008;sept 25:x (eng).

Acupuncture-related effects on autonomic function have been explored via biological and neurophysiologic studies. The hypothalamus, known to regulate the autonomic nervous system, is likely affected by acupuncture treatment that modulates sympathetic functions. The aim of this study was to investigate the effect of electroacupuncture at the Jogsamni point (ST36, an acupoint known to modulate autonomic function) on expression of neuronal nitric oxide synthase (nNOS) in the hypothalamus of spontaneously hypertensive rat. Nitric oxide, which is produced by nNOS activity, plays an important role in the regulation of many physiologic processes, including sympathetic activities, in the hypothalamus and other parts of the brain. nNOS expression was assessed by immunohistochemistry of nNOS and histochemistry of nicotinamide adenine dinucleotide phosphate- diaphorase (NADPH-d). The staining intensities of nNOS-positive neurons and NADPH-d-positive neurons were quantitatively assessed using microdensitometry to measure changes in optical density. The results show that electroacupuncture at ST36 reduced the expression and activity of nNOS in the hypothalamus of spontaneously hypertensitive rats. These findings suggest that the electroacupuncture at ST36 results in modulation of the activity of nNOS in the hypothalamus of spontaneously hypertensive rat.

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