

用激光多普勒效应测定丹参液 对肠系膜微循环的影响

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内容提要 本文报道应用激光多普勒微循环流速测定仪,观察丹参注射液对狗肠系膜微循环的影响,微循环流速及管径($14\sim 20\mu$)由激光多普勒效应测定。在19条狗中,注射丹参前、后5'、10'、15'及20',测定相应流速为 0.426 ± 0.02 ; 0.492 ± 0.025 ; 0.553 ± 0.025 ; 0.526 ± 0.04 及 $0.508\pm 0.04\text{mm/sec}$ 、(5', $10'p<0.001$; $15'p<0.005$; $20'p<0.05$);在11条狗中,以银黄注射液为对照,结果用药前后相比,无显著差异($p>0.05$)。丹参及银黄注射液对心电图、心率及血压均无影响。认为丹参注射液有短期增快微循环血流作用。

有关丹参注射液的临床疗效及药理作用,已有很多报道,均肯定其对冠心病有一定疗效⁽¹⁾,并在动物实验中示有提高其耐缺氧作用⁽²⁾,缺氧小白鼠心肌的超微结构变化亦示丹参具有保护心肌作用⁽³⁾及增加冠状动脉血流⁽⁴⁾。我们在研究甲皱微循环及心肌微循环时^(4,5),发现丹参具有增加微循环血流速度的作用,但以上观察均有一定主观性。电影摄制微循环,虽亦同时证实丹参具有类似作用,但仍未能测得血流速度的客观数据。为此,我们研制成激光多普勒微循环测定仪,观察狗肠系膜于注射丹参前后微循环流速变化。

材论和方法

用6~8kg体重狗,室温为 25°C 左右,在硫苯妥钠麻醉下,用心电图机及动脉插管监测血压及心电图变化,同时打开腹腔,暴露肠系膜,在差分型激光多普勒散射系统及激光多普勒显微镜光学系统下固定肠系膜,找一管径约 $14\sim 20\mu$ 血管,用10%葡萄糖溶液以每分钟15滴保持静脉通畅,然后按每公斤体重0.5ml丹参注射液(上海第一制药厂,批号811230河南种植)经皮管快速注入,每隔5分钟观察血流速度、血压及心电图变化。于血流速度恢复至原来水平二小时后,再以每公斤体重0.5ml银黄注射液(上海中药制药一厂,含银花、黄芩等)注入,观察血流速度、血压及心电图变化。我们在11只狗中曾先注射银黄注射液,二小时后再观察丹参注射液对微循环的影响。在整个实验过程中,固定观察同一微循环血管。

结 果

一、注射前后血压及心电变化:在19条狗中,注射丹参前的血压为 $116.8\pm 19.9/84.4\pm 24.7$,注射后血压的变化范围为 $114.3\pm 19.7/79.9\pm 26.4\sim 140.5\pm 22.2/106.5\pm 18.9$ ($p>0.01$),11条狗中,注射银黄注射液前血压为 $104\pm 9.2/68\pm 14.9$,注射后血压的变化范围为 $99.3\pm 7.9/68.5\pm 15.2\sim 115\pm 16.5/85.5\pm 18.8$ ($p>0.01$),心率及心电图无明显变化。

二、注射前后血流速度变化:1.银黄组:在11条狗中,注射前为 $0.417\pm 0.22\text{mm/sec}$,注射后5、10、15及20分钟流速变化分别为 0.409 ± 0.03 , 0.435 ± 0.03 , 0.431 ± 0.038 及 $0.424\pm 0.032\text{mm/sec}$,注射前后无显著差别($p>0.05$);2.丹参组:19条狗中,注射前流速为 $0.426\pm 0.02\text{mm/sec}$,注射后5、10、15、20分钟分别相应为 0.492 ± 0.024 , 0.553 ± 0.028 , 0.526 ± 0.04 及 $0.508\pm 0.04\text{mm/sec}$,用药前后比较有显著差异(5、10分钟 $p<0.001$,15分钟 $p<0.005$,20分钟 $p<0.05$)

讨 论

本文应用激光微循环流速测定仪,定量观察对照组及注射丹参注射液前后微循环流速及以前实验均证实,丹参能增快微循环血流,从而改善红细胞摄氧及对组织供氧能力⁽⁶⁾。本实验及丹参对肠系膜微循环影响的电影观察,以及丹参对心肌微循环影响的研究均未表明注射丹参前后有明显心率或血压变化或微血管

管径变化,提示丹参增快血流可能通过改善红细胞膜作用,使红细胞膜易变形⁽⁷⁾,至于其抗血小板聚集⁽⁸⁾及抑制血小板释放、血管收缩作用⁽⁹⁾,是否在治疗冠心病中起作用,尚待进一步探索。

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重症复发性口疮中西医结合治疗观察

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自1976年3月至1979年3月,选择12例重症复发性口疮患者,采用中西医结合治疗,经随诊观察,效果满意,报告如下。

临床资料 本组12例中,男5例、女7例。年龄最小25岁,最大55岁。病程最短1年,最长16年,其中1年2例,3年1例,5年2例,9年1例,10年以上6例。合并便秘者5例,神经衰弱2例,慢性胃炎2例,白细胞减少1例。溃疡部位多数位于舌尖、舌缘、颊部和唇部,少数扁桃体亦可发生。一般为2~3个溃疡;溃疡面最小 $0.3 \times 0.5\text{cm}$,最大 $1.2 \times 0.7\text{cm}$ 。本组病例均曾采用过各种中药散剂及维生素B类等治疗而效果不明显或无效。

治疗方法 本组病例,中医辨证均属虚火上炎,表现:舌色淡红,满口白斑微点,甚者疮面下陷,脉虚细等,属思虑过度,多醒少睡,肾阴不足,而致心肾不交,虚火上炎。治用四物汤加黄柏、知母、丹皮,少佐肉桂以引火归原。水煎服。溃疡局部用1%达可罗宁液、维生素U50mg(口含),一日三次;口疮散(川柏、肉桂、细辛、白芨混合为末)使用。

12例中,单纯中药治疗4例;中药加强地松(10mg,一日三次口服)治疗2例;中药、强的松加奴佛卡因封闭治疗1例;中药、强地松、环磷酰胺(50mg,一日三次)加奴佛卡因封闭5例。应用环磷酰胺者系当强地松减量至每日10mg时加用,连服一个月,6例在上述药物治疗同时,据溃疡部位作单侧或双侧颞下三叉一交感神经封闭(0.25%奴佛卡因15ml加维

生素B₁100mg)。

疗效观察 本组12例在治疗期间溃疡明显缩小,愈合时间加快。如唇部溃疡(0.3~0.6cm),一般多在5~7天愈合,最快者3~4天;舌尖小溃疡或舌缘0.4~0.7cm的溃疡,一般在5~7天愈合。经2~5年随访的9例中,复发时间明显延长者4例,其中1例间隔1月发作,1例半年内未发,且复发时症状均较前为轻。1例自原来每周发作延至每年天气转凉时半月至1月有轻发作一次。1例自原来每3天至1周发作,延长至1年内仅有4~5次轻发作,且每次发作多可在5日内自愈。有改善者3例。无效和治疗中断者1例。

体会 本病病因迄今不明,目前临床治疗方法较多,但主要仍是采用各种药物,改善机体状态,加速溃疡愈合,延长溃疡复发的时间。我们对12例重症复发性口疮,采用中西医结合治疗,初步体会:中药能改善机体状态,免疫制剂可加速溃疡愈合,颞下三叉一交感神经封闭能够起到调节植物神经系统功能紊乱的作用。取长补短,中西医药各自发挥优势,确能缩短病程,提高疗效。

本组病例皆属虚火而致,故用四物汤加味治疗。如属实火而致者,表现为:口腔艳红,满口烂斑,口干,甚者腮舌俱肿,脉实有力。则宜用凉膈散加凉水煎服。外搽赴瘟散(黄芩、黄连、山栀、川柏、干姜、细辛为末);冰硼散等。

normal, and decoction I could stimulate the response.

Since decoction I is effective in treating "Yang insufficiency", and decoction II and III are effective in treating "Yin deficiency", the above results suggest that the thyroxin model and the type I hydrocortisone model belong to "Yin deficiency", the tapazol model and the type II hydrocortisone model belong to "Yang deficiency". The above results also suggest that in these models there may be an imbalance between the responses of cAMP system and cGMP system to their respective agonists. (Original article on page 543)

Effect of *Salvia Miltiorrhiza* on Dogs' Mesenteric Microcirculatory Blood

Flow Measured by Doppler's Effect of Laser Light

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Salvia miltiorrhiza has been proved to be effective in treating angina pectoris and protecting myocardium from ischemic injury. By using Doppler's effect of laser light, the authors studied the speed of blood flow in dogs' mesenteric microvasculature of a diameter of 14-40 μm . In 19 dogs, before and 5, 10, 15, 20 min. after intravenous injection of *Salvia miltiorrhiza*, the speed of blood flow was found to be 0.426 ± 0.02 , 0.49 ± 0.025 ($P < 0.001$), 0.553 ± 0.025 ($P < 0.001$), 0.526 ± 0.04 ($P < 0.005$) and 0.508 ± 0.04 mm/sec ($P < 0.05$) respectively; while the speed of blood flow in 11 dogs before and 5, 10, 15, 20 min. after intravenous injection of mixture of *Lonicera Japonica* Thunb, *Stellaria dichotoma* L var, *Lauceolata* Bge, *Cutellaria baicalensis*, *Coptis chinensis* Franch and *Phellodendron amurense*, was found to be 0.417 ± 0.022 , 0.417 ± 0.033 , 0.435 ± 0.032 , 0.431 ± 0.038 and 0.424 ± 0.032 mm/sec ($P > 0.05$), respectively. The authors concluded that the beneficial effect of *Salvia miltiorrhiza* on angina was probably due to its speeding microcirculatory blood flow, which improves the perfusion of the ischemic myocardium. (Original article on page 546)

The Effects of *Viscum Coloratum* (Kom) Nakai on the Cyclic Nucleotides Changes in Ischemic Myocardium

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The increase of cAMP content in ischemic myocardium is one of the major biochemical mechanisms that make ischemic injury worse and cause arrhythmia. It is possible to treat arrhythmia and keep ischemic myocardium under control by decreasing its level in ischemic myocardium or disrupting its effects. In this experiment, we ligated the proximal end of the left anterior descending coronary artery of mice. The cAMP content in myocardium infarcted for 1 hour (9.95 pmoles/mg wet weight, $M \pm SE$) was significantly higher than that of sham operated myocardium (1.78 ± 0.70) and that of non-infarcted myocardium (0.86 ± 0.10 , $P < 0.05$). At the same time, cGMP level of ischemic myocardial tended to go higher than that of the sham operated (0.14 ± 0.045 vs 0.04 ± 0.018), ($0.05 < P < 0.1$). As the cAMP/cGMP ratio of the ischemic is significantly higher than that of the non-infarcted (125.8 ± 27.8 vs 28.2 ± 1.59 , $P < 0.05$) and that of the sham operated (41.3 ± 26.9), ($0.05 < P < 0.1$), excessive sympathetic activity in the ischemic myocardium is thus indicated. *Viscum coloratum* (kom) Nakai injectiones were then injected into the peritoneal cavities of the mice (80 $\mu\text{g/g}$ body weight) before ligation, the increase of cAMP in the ischemic myocardium group was shown to be significantly suppressed (0.94 ± 0.26), and the cAMP/cGMP ratio decreased (53.1 ± 16.3), ($0.05 < P < 0.1$). These results suggest that *Viscum coloratum* (kom) Nakai may counteract β -receptor directly or alleviate the sympathetic reflexes, and that it may be a promising cardioprotective Chinese traditional drug. (Original article on page 548)

Electronic Microscopic Observation of Experimental Myocardial Atherosclerotic

Changes Brought on by "Shi Xiao Powder" (失笑散)

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"Shi Xiao Powder" (失笑散), a medicine composed Cattail Pollen and *Troglodytes* Dung, which was recorded for the first time in "Formularies of the Bureau of People's Welfare Pharmacies" has the effect of resolving blood stasis, softening hard mass and relieving pain and is mainly used to treat diseases resulting from blood stagnancy and stasis. In recent years, "Shi Xiao Powder" has been commonly used in the treatment of angina pectoris with good results.