

当归注射液对大鼠心肌缺血再灌注时心律失常的保护作用

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内容提要 本文以大鼠心肌缺血再灌注为模型, 研究当归注射液对再灌性心律失常的保护作用。结果表明, 当归注射液腹腔注射(0.6g生药/kg)能使室性早搏发生率和心律失常总发生率明显减少, 与生理盐水对照组比较, 差异显著($P < 0.05$), 而与异搏定组比较则差异不显著。提示当归注射液对大鼠心肌缺血再灌注的心律失常具有保护作用。

关键词 当归注射液 异搏定 心肌缺血 再灌注 大鼠

心肌缺血后再灌注可引起再灌综合征, 表现为出血性梗塞、心律紊乱、心功能障碍等, 其发病机制目前尚未彻底阐明。有认为心肌再灌注损伤与再灌注时心肌细胞内钙超负荷(Calcium overload)有关^①。而当归(*Angelica sinensis*)具有钙通道阻滞作用; 且能缓解冠脉痉挛, 增加冠脉流量; 对各种心肌缺血模型有保护作用^②。当归能否预防心肌缺血再灌注综合征, 尚未见研究报告。本文用大鼠心肌缺血再灌注病理模型^③观察了5%当归注射液对再灌注时心律失常的保护作用, 通过实验组与阳、阴性对照组心电图的分析比较, 判断其作用效果。

材料与方法

选取健康 Sprague-Dawley大鼠(封闭群、由中山医科大学动物室提供)34只, 雌雄兼用, 均以3%戊巴比妥钠(45mg/kg)腹腔麻醉。用XSJ-5型心电示波记录仪监视并描记I导联心电图。人工呼吸下, 开胸暴露心脏, 以左冠状静脉主干为标志, 在左心耳根部下方2mm处肺动脉圆锥之间, 用细丝线穿过心肌表层以备结扎, 待心电图稳定10min后, 腹腔注射给药, 注射后20min结扎, 结扎时, 将一根直径为3mm的封口充气硅胶管置于丝线与血管之间, 使硅胶管压迫左冠状动脉主干引起闭塞, 结扎后观察并记录5min内心电图, 以ST段和T波抬高确定心肌缺血, 随后解除结扎, 观察并记录10min内心电图, 以备分析。

实验动物随机分为三组: (1)当归组(n=12), 给予5%当归注射液(广东小榄制药厂生产, 批号870806, pH5.4, 含 Na^+ 137mmol/L, K^+ 6.53mmol/L, Ca^{2+} 0.18mmol/L, Mg^{2+} 0.82mmol/L), 药量为12ml/kg体

重, 相当生药0.6g/kg体重; (2)异搏定组(n=10), 给予异搏定注射液(天津市和平制药厂生产)0.5mg/kg体重; (3)生理盐水组(n=12), 给予等容量生理盐水。实验后, 根据各组再灌注后心律失常发生率的差异, 以直接概率法进行计数资料的统计学处理, 判断各组差异的显著性。

结 果

所有实验动物均在左冠状动脉主干结扎后出现ST段和T波抬高。再灌注后10min内, 各组发生心律失常的情况见附表。

附表 当归注射液对大鼠心肌缺血再灌注时心律失常的影响

组别	鼠数(只)	腹腔注射剂量(mg/kg)	心律失常		室性早搏		室速		传导阻滞	
			只数	%	只数	%	只数	%	只数	%
当归	12	600	5	41.7*	5	41.7*	5	41.7	1	8.3
异搏定	10	0.5	4	40.0*	4	40.0*	3	30.0	1	10.0
生理盐水	12		11	91.7	11	91.7 Δ	8	66.7	5	41.7

*与生理盐水组比较, $P < 0.05$; Δ 多为频发多源性室性早搏

经统计学处理表明, 当归组与生理盐水对照组比较, 心肌缺血再灌注时心律失常总发生率及室性早搏发生率明显减少($P < 0.05$), 差别有显著意义, 室性心动过速和传导阻滞发生率也有所减少, 但差异不显著; 而当归组与异搏定组比较, 各类型心律失常的发生率相近似, 差异无显著意义($P > 0.05$)。可以认为, 当归注射液腹腔注射对大鼠心肌缺血再灌注时的心律失常

有一定保护作用,对室性早搏防护效果较好,不仅发生率减少,且极少出现多源性或频发者。

讨 论

早在1956年魏连玑报道,当归流浸膏有奎尼丁样作用,能延长家兔心房不应期,对实验性猫或犬心房纤颤有治疗作用⁽⁴⁾。当归流浸膏及醚提取物可降低心肌兴奋性,延长不应期及减慢洋金花所加快的大鼠心率⁽⁵⁾;醇提取物可明显对抗氯仿-肾上腺素或哇巴因诱发的心律失常⁽⁴⁾。本文证明当归注射液对大鼠心肌缺血再灌注性心律失常具有保护作用,与阳性对照组异搏定(钙拮抗剂)的作用相似。

目前认为,心肌缺血再灌注时细胞内钙超负荷造成膜磷脂和心肌细胞功能的损伤,可能是再灌注综合征的机制之一⁽¹⁾,Shen等发现,心肌再灌注10 min内,钙含量增加约10倍⁽⁶⁾,此时增加的细胞内钙,可导致后除极增加性与触发性心律失常,故阻止过多的钙进入心肌细胞,对防治再灌注性心律失常有一定意义。本文观察到钙拮抗剂异搏定对再灌注损伤有保护作用就是证明,也与文献报道一致^(7,8)。1987年已有

综述表明,当归具有钙通道阻滞作用⁽²⁾,这也许当归注射液能保护大鼠心肌缺血灌注性心律失常的机制之一。

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莪红注射液为主治疗小儿闭塞性脑血管炎所致偏瘫 10 例

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我院自1977年~1990年共收治小儿闭塞性脑血管所致偏瘫10例,用莪红注射液为主治疗,取得了较好的疗效。

临床资料 本组病例根据《实用儿科学》(第4版)及《小儿神经系统疾病》(人民卫生出版社,1983:378)关于小儿急性偏瘫的分类,结合病史、脑脊液化验,脑CT扫描等,排除了颅内化脓性、结核性感染,诊断为闭塞性脑血管炎所致的偏瘫。10例中,男6例,女4例;年龄:1~1.5岁3例,3~4岁2例,5~7岁3例,10~12岁2例;病程:4~7天5例,10余天1例,30~45天3例,11个月1例。发病前有发热史5例,伴惊厥发作4例,伴意识障碍2例;10例均有中枢性偏瘫,合并中枢性面瘫5例;偏瘫肢体肌力0级3例,II级3例,III级2例,IV级2例。10例均作了腰穿,除2例颅压增高(分别为210 mmH₂O和320 mmH₂O),其余颅压正常。2例脑脊液白细胞0.019~0.02/L(19~20/mm³),为淋巴细胞,余例脑脊液正常。7例作了脑CT,均提示脑部有局灶性或多发性低密度区。

治疗方法 采用我院自制的莪红注射液(本品为莪术、红花中提取的有效成分制成的灭菌水溶液,每10 ml含生药4.5g)20~30 ml加入5%葡萄糖250 ml内静脉滴注,每日1次,10~15天为1疗程,停药3~5天,可重复应用。病情好转可改为莪红冲剂口服,辅以维生素等药物,2例入院时颅压高者短期用甘露醇及地塞米松治疗。

结 果 疗效判定标准:瘫痪肢体肌力恢复至V级为痊愈,提高II级以上为显效,提高III级为好转,无变化者为无效。结果:痊愈7例;显效2例;好转1例。用药1疗程痊愈7例,1例于第2疗程后肌力恢复正常,另1例第2疗程后肌力提高II级,病程较长(11个月),1例用药1疗程后肌力提高I级达IV级。

讨 论 针对闭塞性脑血管炎的病理改变为血管内皮细胞肿胀致血管狭窄或血栓形成,采用中医活血化瘀药物红花、莪术为主的莪红注射液静脉滴注。二药配伍既可直接扩张血管,又能溶解吸收血栓,可改变血液浓粘稠状态,改善脑血循环,使因缺血乏氧而受抑制的脑机能得以恢复。

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peripheral blood in normal ICR mice, and antagonized the immunosuppressive actions of hydrocortisone. There were marked potentiating effects on delayed hypersensitivity reaction induced by 2, 4-dinitrochlorobenzene in normal NIH mice treated with IIP as well as in immunodepressed mice induced by cyclophosphamide. By administration of IIP, the percentage of ANAE⁺ lymphocytes stained with acid α -naphthyl acetate esterase method were significantly increased in peripheral blood of normal ICR mice, and the decreases in number of ANAE⁺ lymphocytes in mice induced by hydrocortisone were prevented to a certain extent. But IIP could not enhance Con A-induced lymphocyte proliferation of C₅₇BL mouse spleen cells in vitro measured with MTT colorimetric assay. In addition, the plaque forming cells in 5×10^6 splenocytes of NIH mice treated with IIP were higher than that of the control group ($P < 0.01$). IIP could also elevate the clearance rate of intra-venous charcoal particles in normal mice, i. e., stimulated the phagocytic activity of macrophages. The result indicates that IIP is capable of increasing humoral and cellular immune functions and enhancing the functions of reticuloendothelial system, and might be a good immunopotentiator.

Key Words *Isatis indigotica* polysaccharide, immunostimulating effect

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The Protective Effect of Angelica Injection on Arrhythmia during Myocardial Ischemia Reperfusion in Rat

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The protective effects of Angelica injection on the reperfusion arrhythmia were studied through the model of ischemic myocardial reperfusion in rats. The results showed that the incidence of ventricular premature beat and the total incidence of arrhythmia (IA) were greatly reduced by peritoneal injection of Angelica (0.6 gm crude drug/kg) in rats. The difference between the Angelica group ($n=12$, IA=41.7%) and the saline control group ($n=12$, IA=91.7%) was significant ($P < 0.05$), while that between Angelica group and verapamil group ($n=10$, IA=40%) was insignificant ($P > 0.05$). The data suggested that Angelica injection is effective on the protection of arrhythmia during the myocardial ischemia reperfusion in rats.

Key Words Angelica, Verapamil, myocardial ischemia, reperfusion, rat

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The Scavenging Effect of Re-Du-Qing(热毒清) on Free Radicals

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The general Schwartzman reactions of rabbits were induced by intravenously injecting endotoxin twice with 24 hours interval. The lipid peroxides (LPO) in sera and liver homogenates of rabbits in normal saline group (12.26 ± 0.84 n mol MDA/ml, 1.86 ± 0.43 n mol MDA/mg protein respectively) were significantly higher than those of rabbits in normal control group (7.93 ± 2.90 , 1.31 ± 0.22 , both $P < 0.01$), and LPO in sera and liver homogenates of rabbits in Re-Du-Qing group (6.55 ± 2.97 , 1.19 ± 0.12) were evidently lower than those of rabbits in normal saline group ($P < 0.01$), accessed to the LPO level of rabbits in normal control group. In in vitro experiment, LPO of mitochondria in Re-Du-Qing group (1.50 ± 0.43 n mol MDA/mg protein) dramatically decreased, compared with that of endotoxin group (2.39 ± 0.69 , $P < 0.05$) and of control group (2.23 ± 0.75 , $P < 0.05$). The findings of both in vivo and in vitro experiments showed that Re-Du-Qing possesses scavenging effect on free radicals. In view of the detoxification mechanism of Re-Du-Qing, in addition to inhibiting bacteria and degrading endotoxin, the scavenging effect of Re-Du-Qing on free radicals are also included.

Key Words Re-Du-Qing, endotoxin, free radicals, lipid peroxides

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