

蒲黄对家兔实验性急性心肌梗塞的影响

湖南省中医药研究院病理组

黄淑云 曹旅川 陈 享 陈明彩 汪丽莹

湖南省武装警察总队病理科

王义敬 陆爱权 刘秀河

内容提要 本文报告用家兔左室支动脉结扎形成急性心肌梗塞模型，以硝基四氮唑蓝(N-BT)作大体标本染色及组织学检查来评价蒲黄的抗梗塞作用。结果表明，蒲黄可以限制梗塞的范围。其疗效与异搏定相近似。值得推荐临床进一步观察。

蒲黄(*Typha angustata* Bory et Chev.)为传统活血化痰药，是香蒲科植物长苞香蒲。我院以往实验证明它具有改善微循环⁽¹⁾及抗渗出作用⁽²⁾。上海第二医学院报道，蒲黄对家兔心肌损害有防护影响⁽³⁾。但对心肌梗塞的影响，国内尚未见报道，本文初步探讨如下。

材料与方法

一、取体重 2~3 kg 的家兔，不拘雄雌，在局麻下采用不破胸膜，直接暴露心脏，结扎左室支的中部，形成实验性急性心肌梗塞模型。

二、心电图监测：术前、术后立即和第10小时各记心电图一次，分别记录Ⅱ、Ⅲ、aVF及8点胸前导程(梗塞中心区)。凡术前有病理性Q波者予以淘汰。术后以S-T段偏移及病理性Q波出现作为鉴定手术成功的指标。

三、手术后10小时处死动物，用N-BT作大体标本染色，确定梗塞的百分率(梗塞重量/全心重量×100%)。

四、取大体标本用10%中性福尔马林固定，用苏木素-伊红染色作组织学检查。按L David Hillis的方法⁽⁴⁾判断梗塞的分级。

五、制剂：蒲黄每毫升含生药5g，由我院制剂室提供。异搏定注射液为天津和平制药厂出产，批号811203。所用药物均按容积4ml/kg静脉注射。分别于结扎前10'及结扎后立即，结扎后2h、5h、8h各给药一次。

六、实验分组：1. 蒲黄组：家兔16只，每次静注生药4ml/kg。

2. 异搏定组：家兔13只，每次取药0.5ml/kg稀释

至4ml/kg静注。

3. 盐水组：家兔14只，每次静注4ml/kg。

4. 假手术组：家兔13只，只开胸，不结扎动脉，不给任何药物。

结 果

一、心肌梗塞百分率：蒲黄组 $11.78 \pm 0.68\%$ ($M \pm SE$)；异搏定组 $12.6 \pm 0.87\%$ ($M \pm SE$)；盐水组 $20.4 \pm 1.4\%$ ($M \pm SE$)；假手术组0%。经F检验表明，蒲黄组与盐水组相比 $P < 0.01$ ，异搏定组与盐水组相比 $P < 0.01$ ，均有显著差异。蒲黄组与异搏定组相比 $P > 0.05$ ，无统计学差异。

二、心电图：手术前各组均正常。结扎后立即出现S-T段抬高，最高达10.6mv，最低1.5mv。手术后10小时Q波出现率：盐水组100%；蒲黄组93.7%；异搏定组84.6%。均无组间的明显差异($P > 0.05$)。表明手术是成功的。假手术组无S-T段偏移，术后10小时不出现病理性Q波。

三、病理切片：坏死心肌显示嗜伊红深染，横纹消失及颗粒变性，肌细胞细长、变薄及波浪状改变。核固缩及淡染，梗塞外周有中性白细胞浸润，均呈早期心肌梗塞的表现，其显微镜下分级如附表。

附表 各组心肌梗塞分级

	例数	0级	I级	II级	III级	IV级
假手术组	13	7	6	0	0	0
蒲黄组	16	0	1	4	10	1
盐水组	14	0	0	1	3	10
异搏定组	13	0	1	1	9	2

经F检验表明,蒲黄组与盐水组相比 $P<0.01$;异搏定组与盐水组相比 $P<0.01$;均有显著差异。异搏定组与蒲黄组相比 $P>0.05$ 。假手术组6例有点状嗜伊红深染,7例完全正常。

讨 论

本实验表明,在缩小梗塞范围方面,中药蒲黄取得了与异搏定一致的效应,为N-BT染色及组织切片所证实。异搏定在限制梗塞范围方面,据Plwahl等⁽⁵⁾报道,可缩小结扎猴冠状动脉前降支后所致的梗塞面积。Douglas等报道⁽⁶⁾,在选择性病人中,异搏定具有减少梗塞范围及轻度抗高血压的作用。又有Heik-kila⁽⁷⁾等报道,异搏定注射后几分钟,因其使外周阻力降低,出现明显动脉压下降,这种后负荷降低,可以明显的抵消钙拮抗剂对心肌固有的负性肌力作用。还认为,异搏定对急性心肌梗塞患者缺血左室节段的保护作用,可能由于:(1)直接的心肌钙拮抗作用;(2)心肌血流区域性改善;(3)体循环的血流动力学作用,外周阻力下降;动脉压下降;收缩压下降而舒张压不变;排血量不变;左室收缩做功降低。心率—血压乘积下降而不伴有左室容积增加,有利于减少梗塞的左室的能量需求。从而使心肌梗塞范围减少。

蒲黄是活血化瘀中药,我院实验证明可使金黄色地鼠夹囊微循环小动脉血流速度加快92.5%及固定视野内毛细血管开放数增加93.3%,增加小鼠心肌⁸⁷Rb(铷)的吸收量。使用药后小鼠心肌血流量增加27.9%。且蒲黄有降低毛细血管通透性、消除水肿、改善心肌血液循环的作用。在临床上,我院用单味蒲黄治疗66例冠心病⁽⁸⁾,观察二个月,取得89%消除症状,89%缓解心绞痛,48%改善心电图,58%降低血压和60%、94%降低血清总胆固醇与甘油三酯的效果。上海第二医学院报道蒲黄有降低血胆固醇⁽⁹⁾、预防动脉粥样硬化的形成⁽¹⁰⁾和抗血小板凝集等作用⁽¹¹⁾。而这些作用对形成心肌梗塞均有一定影响。此外,蒲黄药源广泛、

价廉,无毒性,比异搏定更具有优越性。因此,可以推荐作为防治心肌梗塞的药物。

关于心电图方面,饶曼人⁽¹²⁾等认为,S-T段抬高有自然演变过程,扎后1~5小时为波动期,5~6小时自然下降,易造成假阳性。N-BT染色比S-T段更可靠。故本文不予讨论,只作手术参考指标。

参 考 文 献

1. 陈振中,等.蒲黄的实验研究(七)—蒲黄对金黄色地鼠夹囊及小鼠心肌微循环的影响.湖南医药杂志 1979; 6(5):58.
2. 黄淑云,等.蒲黄的实验研究(四)—蒲黄消肿作用的探讨.湖南医药杂志 1978; 5(2):54.
3. 上海第二医学院病理生理教研室,等.生蒲黄对家兔实验性心肌损害的形态学的观察.科研资料汇编 1980:31—32.
4. L David Hillis, et al. USE of changes in the epicardial QRS complex to assess interventions which modify the extent of myocardial necrosis following coronary artery occlusion. Circulation 1976; 54(4):592.
5. Plwahl, et al. Verapamil and myocardial infarct size. American J of Cardiology 1980; 46:374.
6. Douglas, et al. New antiarrhythmic agents. American J of Cardiology 1978; 41:1017.
7. Heik-kila J, et al. 异搏定对急性心肌梗塞病人的作用—血流动力学以及正常和缺血左室心肌功能的研究.国外医学(心血管分册) 1984; 5:300.
8. 张碧姿. 调理气血法治疗冠心病的体会.湖南医药杂志 1982; 9(3):6.
9. 上海第二医学院瑞金医院内科,等.生蒲黄活血化瘀作用的临床疗效观察.科研资料汇编 1980:1—6.
10. 上海第二医学院生物物理教研组,等.蒲黄防治家兔实验性动脉粥样硬化的电子显微镜观察.科研资料汇编 1980:19—22.
11. 徐也鲁,等.蒲黄在体外对家兔血小板聚集及血小板电泳的影响.科研资料汇编 1980:58—61.
12. 饶曼人,等.抗心肌缺血药物筛选规程.药理学进展(心血管分册).北京:人民卫生出版社出版,1980:261.

• 消息 •

中国中西医结合研究会江苏省苏州市分会成立

中国中西医结合研究会江苏省苏州市分会于1984年11月成立。苏州市政协、苏州市委统战部、宣传部及市科协负责同志到会并讲话,中国中西医结合研究会总会常务理事、省分会秘书长徐长桂同志到会祝贺。会议期间,徐长桂主任医师、陈廉副研究员、印其章副教授等应邀做学术报告。大会选出了17名理事,龚正亮任理事长,卢君健、蔡景高任副理事长,任光荣任秘书长。会上通过了章程并制定了1985年分会工作规划。

(钱荣铨)

**Effects of Qi Jia Dan Injection (芪甲丹注射液) on Improving Microcirculatory
Disturbances of Rabbits Irradiated with γ -rays
— Determination of Blood Circulation Time and Capillary Permeability by Fluorescence Angiography**

Wang Hongfu (王洪复), Chen Yongming (陈永明), Yuan Longbao (袁龙宝), et al
Institute of Industry Hygiene, Shanghai First Medical College, Shanghai

The blood circulation time from ear to eye determined by fluorescence angiography of bulbar conjunctival microvessels of rabbits may be taken as an index of blood velocity in the laboratory. It may also be used to observe the capillary permeability. This paper reports that the ear to eye blood circulation time of normal rabbits was found to be 6.20 ± 0.94 sec, and the circulation time of rabbits irradiated with 400 rads of γ -rays was prolonged, especially on the 7th and 11-12th day which was found to be 7.92 ± 1.89 sec and 8.27 ± 1.59 sec respectively. The capillary permeability also increased markedly after irradiation. The blood circulation time of rabbits given Qi Jia Dan injection (芪甲丹注射液) after irradiation returned to normal. The capillary permeability was also mitigated. Morphologic changes were found improving.

(Original article on page 295)

Effect of *Typha Angustata* on Experimental Acute Myocardial Infarction in Rabbits

Huang Shuyun (黄淑云), *Wang Yijing (王义敬), et al
*Department of Pathology, Hunan Provincial Academy of TCM, **
Department of Pathology, Hunan Provincial General Hospital of Armed Police, Changsha

In traditional Chinese medicine *Typha angustata* (TA) was stated to possess the function of promoting tissue blood perfusion and eliminating circulatory stasis. It has the function of improving microcirculation, inhibiting-exudation effect and reducing aggregation of platelets. It may be used to protect myocardial cells from ischemic injuries or infarction.

Acute myocardial model was produced by ligation of the left ventricular branch of coronary artery of the rabbit, and effects of TA treatment were observed and compared with those of verapamil, and normal saline and blank control.

N-BT staining was used to identify the extent of infarction and the injured myocardium was examined histologically in detail. The results showed that TA treatment can significantly reduce the size of infarction as verapamil does. It is suggested that TA might be introduced to further clinical trials.

(Original article on page 297)

The Labor-Induction Effect of Injectio Typha and Its Pharmacological Properties

Geng Qunmei (耿群美)
Department of Pharmacology, National Medical College of Inner Mongolia, Tongliao

The labor-induction effect of injectio typha was confirmed in 14 pregnant albino mice and 16 pregnant guinea pigs. The effective dosage was 2-3g/kg. Results of common pharmacological experiments of injectio typha are as follows: The LD_{50} is 35.57g/kg. The effective dosage of injectio typha in labor-induction experiments was 12-18 times lower than that of the LD_{50} dosage in mice, therefore it is rather safe. Intraperitoneal injection of injectio typha shows hypersensitivity. It causes haemolytic effect, shortens the time of blood coagulation and thus promotes the said process. It decreases total count of both red and white cells, and has a temporal inhibitory effect on the excised toad heart and also decreases the blood pressure of rabbits. Injectio typha has an excitatory effect on the uteri of rabbits both in vitro and vivo, smaller dosage has the effect of enhancing the contraction of uteri, but with larger dosage, the excitatory effect is so obvious that irregular and spasmodic contraction is observed.

(Original article on page 299)