

# 生脉口服液对老年大鼠肝脏组织化学成分的影响

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**内容提要** 本文通过动物实验,观察了生脉口服液对老年大鼠体重、体力及肝脏组织化学成分的影响。结果表明:生脉口服液对老年大鼠的体重无影响,但能够明显地增强动物的体力。同时能提高老年大鼠肝脏内琥珀酸脱氢酶的活性,增加肝脏内核糖核酸和糖原的含量。提示生脉口服液有增强老年大鼠体力和肝细胞机能的作用。

生脉口服液是根据中医学中传统方剂的配方,经现代工艺提取有效成分制成的,有益气养阴之功效。临床应用于气阴两虚的患者有较好的疗效。方剂中的人参、麦冬等都是常用的延缓衰老中药<sup>①</sup>,推想生脉口服液对老年大鼠的功能衰退有一定恢复作用。本实验的目的是观察生脉口服液对老年大鼠体重、体力及肝脏组织化学成分的影响。

## 材料和方法

实验选用健康的18个月龄的Wistar大白鼠22只,雄性12只,体重为400~500g;雌性10只,体重为300~400g。随机分为两组,雄雌各半。对照组:每日给予10ml/kg生理盐水(北京制药厂生产,批号83072409)灌胃。给药组:每日给予10ml/kg生脉口服液(每ml含生药0.55g,上海中药制药一厂生产,批号850708)灌胃。两组动物连续灌胃三周。给药前测定动物的体重和体力,给药后每周测定一次。经t检验进行统计学处理。

一、应用自行设计的抱柱法测定动物的体力情况,将大鼠放于纱布包裹的木棍上,待其抓牢后提起,使之悬空,用秒表计算时间,直到大鼠因不能坚持而掉落为止。测定三次取其平均值。

二、给药三周后,将动物断头处死,取出肝脏放入恒冷箱切片机内进行切片,切片厚20 $\mu$ m。应用Pearson法显示琥珀酸脱氢酶(SDH);Preston法显示乳酸脱氢酶(LDH);Diengdoh法显示单胺氧化酶(MAO);McManus法显示糖原;Elias技术显示核酸<sup>②</sup>。各按其反应强度分为“+++”、“++”、“+”。经 $\chi^2$ 检验进行统计学处理。

“+++”为强阳性反应,光学显微镜下观察到肝细胞的胞质内反应产物密集,染色深。“++”为中等

强度的反应,光镜下观察到细胞的胞质内反应产物不太密集,染色中等。“+”为阳性反应,光镜下观察到胞质内有阳性反应颗粒,反应产物稀疏,染色浅。

## 结 果

一、生脉口服液对老年大鼠体重和体力的影响,老年大鼠背毛稀疏发黄,无光泽,动作迟缓,对外界刺激反应不灵敏。灌胃前对照组平均体重为429g,平均抱柱时间为27秒;给药组平均体重为402g,平均抱柱时间为29秒。灌胃3周后,对照组平均体重为420g,平均抱柱时间为29秒;给药组平均体重为404g,平均抱柱时间为40秒。实验结果表明:生脉口服液对老年大鼠体重没有明显影响( $P>0.05$ ),但体力明显增强,两组相比有显著差异( $P<0.05$ );给药组动物给药前后体力亦有显著差异( $P<0.05$ )。

二、生脉口服液对老年大鼠肝脏琥珀酸脱氢酶的影响:大鼠肝脏内的SDH强阳性细胞主要位于肝小叶的周围带,以门管区周围更为明显。SDH反应产物呈蓝紫色的颗粒分布于肝细胞的胞质内,细胞核呈阴性反应。给予生脉口服液后老年大鼠肝脏内SDH反应明显增强(见表1)。实验结果表明:生脉口服液能够明显增强老年大鼠肝脏内SDH的活性。

三、生脉口服液对老年大鼠肝脏内乳酸脱氢酶的影响:大鼠肝脏内LDH呈强阳性反应,肝小叶的中央带和周围带反应较强,中间带反应略弱一些。给予生脉口服液后老年大鼠肝脏内LDH反应有所降低,但未达到统计学显著差异(见表1)。实验结果表明:生脉口服液对老年大鼠肝脏内的LDH没有明显影响。

四、生脉口服液对老年大鼠肝脏内单胺氧化酶的影响:老年大鼠肝脏内MAO反应较强,以肝小叶周围带的肝细胞更为明显。MAO的反应产物呈蓝紫色颗粒

分布于肝细胞的胞质内,细胞核呈阴性反应。给予生脉口服液后老年大鼠肝脏内的MAO反应略有减弱(见表1)。实验结果表明:生脉口服液对老年大鼠肝脏内MAO没有影响。

表1 生脉口服液对老年大鼠肝脏内组织化学成分的影响

	SDH			LDH		MAO	
	+++	++	+	+++	++	++	+
对照组	2	3	6	9	2	9	2
给药组	7	3	1	6	5	7	4
P 值	<0.05			>0.05		>0.05	

五、生脉口服液对老年大鼠肝脏内糖原的影响:大鼠肝脏内含有丰富的糖原,经组化PAS法显示糖原呈红色颗粒分布于肝细胞的胞质内。肝小叶中央带的肝细胞含糖原较多,而周围带的细胞含糖原较少。给予生脉口服液后老年大鼠的肝糖原反应中等强度的数量增多(见表2)。实验结果表明:对照组与给药组动物肝脏内糖原的含量有显著差异。

表2 生脉口服液对老年大鼠肝糖原与核酸的影响。

	糖 原			RNA	
	+++	++	+	++	+
对照组	6	2	3	3	8
给药组	4	7	0	9	2
P 值	<0.05			<0.01	

六、生脉口服液对老年大鼠肝脏内核酸的影响:应用Elias氏技术显示肝脏内的核酸,细胞核内的DNA呈蓝绿色,胞质内的RNA呈红色。给予生脉口服液后老年大鼠肝脏内DNA反应未见明显变化,而胞质内的RNA反应则明显增强(见表2)。实验结果表明:生脉口服液能够明显增加老年大鼠肝脏内RNA的含量。

## 讨 论

生脉散临床应用有很好的疗效,方剂中的人参是公认的补益药。近年来对人参的药理作用进行了大量的研究,证实其对机体的神经、免疫、内分泌和消化系统均有明显的调节作用<sup>(3)</sup>。人参的抗衰老作用也受到人们的重视<sup>(4)</sup>。方剂中的五味子也有兴奋神经、改善智力、提高工作效率和保护肝脏的作用<sup>(5)</sup>。肝脏对机体起着重要的代谢作用,其机能状态对健康有着明显的影响<sup>(6)</sup>。细胞内RNA的含量和SDH的活性与细胞的机能状态和能量代谢情况有着密切的关系。生脉口服液可以提高老年大鼠机体的活力,并增强肝脏内SDH的活性,提高肝细胞内RNA的含量和调节肝糖原贮存情况。提示该口服液能够增强肝脏的功能和提高肝细胞的有氧代谢水平。这些组织化学成分的变化对改善老年大鼠的健康状况无疑是有益的。实验结果还观察到生脉口服液对LDH和MAO的作用不明显,说明其对肝脏内的无氧酵解和单胺类物质代谢的影响较小。

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## 青黛粉治疗粘膜溃疡、化脓性中耳炎

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作者根据本刊介绍的方法,采用青黛粉(青黛60g、冰片12g、薄荷脑2.4g共研细末,混合密闭保存备用)治疗口腔溃疡29例,男18例,女11例,年龄3~55岁。局部溃疡面敷青黛粉,3~4次/日,同时针对不同病因对症治疗,29例均1日内见效,2~3天治愈。口腔溃疡1例,青黛粉用香油调制成糊膏局部涂擦,3~4次/日,3日内治愈。化脓性中耳炎6例,成人

4例,小儿2例,先用3%双氧水洗净外耳道脓液,取玻璃管或纸卷成筒状将药粉吹入穿孔处,每天吹药1次,2例3次、1例5次、2例6~7次治愈;1例吹药10次症状好转。药敏性龟头溃疡、糜烂3例,每日用1:5000高锰酸钾液清洗疮面后,撒布青黛粉,1~2次/日,配合抗组织胺类药物口服,多饮开水,3例均在4~5日内结痂而愈。

# Effect of "Yiqi Congming" Decoction (益气聪明汤) on the Central Nervous System in Reserpinized Mice

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Experiments showed that many symptoms in chronically reserpinized mice, such as loss of weight, diarrhea, hypothermia, etc., were similar to those of Yang or Qi deficiency syndrome in TCM. These symptoms resulted from the depletion of monoamine transmitters in the brain by reserpine. In order to study the mechanism of central action of Yiqi Congming decoction (replenishing Qi and becoming wise), the effects of the prescription were observed on the contents of norepinephrine (NE) in the hypothalamus, dopamine (DA) in the striatum, 5-hydroxytryptamine (5-HT) and 5-hydroxyindolacetic acid (5-HIAA) in the brainstem of reserpinized mice, and the activity of  $\text{Na}^+ - \text{K}^+ - \text{ATPase}$ ,  $\text{Mg}^{++} - \text{ATPase}$  and mitochondrial ATPase in some districts of the brain, which were closely related to the uptake and the storage of transmitters, and cAMP levels in the brain and the blood of reserpinized mice. The results showed that the content of NE, DA and 5-HT, the activity of  $\text{Na}^+ - \text{K}^+ - \text{ATPase}$ ,  $\text{Mg}^{++} - \text{ATPase}$ , and mitochondrial ATPase and the levels of cAMP were statistically decreased as compared with the control.

After oral administration of Yiqi Congming decoction, NE and DA levels in reserpinized mice increased ( $P < 0.01$ ), while the 5-HT and 5-HIAA contents remained unchanged.

According to the composition of the prescription, four groups were divided to administer the Chinese materia medica. The effect of Qi tonics (*Codonopsis pilosula*, *Astragalus membranaceus* and *Glycyrrhiza uralensis*) were stronger than other drugs. No synergistic effect of Qi tonics and Yang enhancing drugs (*Puerariae lobata*, *Cimicifugae heracleifolia* and *Viticis trifolia*) were observed.

Further study revealed that the activities of  $\text{Na}^+ - \text{K}^+ - \text{ATPase}$  and  $\text{Mg}^{++} - \text{ATPase}$  in some district of brain of reserpinized mice were increased after oral administration of Qi tonics ( $P < 0.05$ ), while only the activity of  $\text{Na}^+ - \text{K}^+ - \text{ATPase}$  was increased after the treatment of Yang enhancing drugs. cAMP levels in the brain (cerebellum not included) and the blood in reserpinized mice were also elevated when Qi tonics were given. The results suggested that Qi tonics may have the pharmacological effects: (1) It maintained activity of  $\text{Na}^+ - \text{K}^+ - \text{ATPase}$  and  $\text{Mg}^{++} - \text{ATPase}$  in the brain to promote uptake of monoamines into the premembranous synapse and the storage granules; (2) It increased cAMP content in the brain to accelerate the synthesis of monoamines.

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# Effect of Sheng Mai Liquor (生脉液) on Hepatic Histochemistry in Aged Rats

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22 healthy aged rats (18 month old) were selected for this experiment. The animals were divided randomly into treated and control groups. These two groups were treated with Sheng Mai Liquor (10 ml/kg per day) and normal saline (10 ml/kg per day) respectively for 3 weeks. The body weight and physical strength were measured before they were sacrificed. The liver was excised and put into the cryostat section and the histochemical reactions with succinate dehydrogenase (SDH), lactate dehydrogenase (LDH), monoamine oxidase (MAO), RNA and glycogen were carried out. The experimental results showed that there was no change on body weight of the aged animals in the treated group, but physical strength were enhanced. The activity of SDH was elevated significantly and the content of RNA and glycogen were increased markedly in the liver of aged rats of treated group than that of the control. But there was no significant difference of hepatic LDH and MAO between these two groups. The results suggest that Sheng Mai Liquor itself may enhance the aged rats' physical strength and promote the functional activity of liver in the aged rats.

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# Effects of *Crataegus pinnatifida*, *Astragalus membranaceus* and *Acanthopanax senticosus* on Cholesterol Metabolism in Guinea Pig

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Crude aqueous extracts of *Crataegus pinnatifida*, *Astragalus membranaceus* and *Acanthopanax senticosus* were given orally to female guinea pigs once daily for three weeks. *Crataegi Pinnatifida* and *Astragalus membranaceus* inhibited the activity of liver microsomal and small intestinal mucosa 3-hydroxy-3-methylglutaryl coenzyme A reductase (HMGR). *Acanthopanax senticosus* not only inhibited the activity of HMGR, but also enhanced significantly the activity of liver microsomal cholesterol 7 $\alpha$ -hydroxylase. All of the three Chinese drugs showed no evidence of affection on the levels of serum total cholesterol and high density lipoprotein cholesterol (HDL-C), the cause of which has been explored.

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