

丹参对肺心病患者右心功能和血液流变性的影响

宁波地区医科所 周宏奎 刘梅仙 张秀丽

宁波市第三医院 洪中立 王祖来 郑飞龙

内容提要 本文对肺心病发作期患者26例在急性感染控制后,采用丹参注射液30ml加入10%葡萄糖500 ml内静滴,10~14天为一疗程。观察治疗前后右心功能和血液流变学的变化,结果PEP时间缩短, RVET 时间延长和 Q-Z 时间缩短,血液流变学五项检查均有一定程度改善,其中全血粘度和红细胞电泳改善比较明显。

我们在1980~1982年的住院及科研门诊病例中,挑选应用丹参治疗的肺心病患者26例,分析治疗前后右心功能和血液流变性变化,结果有明显改善作用,报道如下。

对象与方法

一、对象:按1977年修订的慢性肺心病诊断标准。根据病史、体征、心电图、X线及超声心动图确诊。在急性感染控制后用丹参治疗,观察期间不用洋地黄及血管扩张剂,以免受缺氧、酸血症及药物对肺动脉压的影响。其中男23例,女3例;年龄41~74岁,平均 51.2 ± 5.4 岁。

另选健康人作对照。测血液流变学指标34例,其中男19例,女15例;平均年龄 48.6 ± 3.4 岁;测右心功能15例,其中男10例,女5例;平均年龄 45 ± 2.3 岁。

二、方法:丹参注射液30ml(每ml含生药1.5g)加入10%葡萄糖液或5%低分子右旋

糖酐500ml中静脉滴注,每日一次,10~14天为一疗程,疗程结束时复查各项检查指标。

右心功能为同步测定右肺阻抗容积图(四极法),心音图及心电图。肺阻抗容积图采用ZX-2型阻抗心动仪,在呼气末暂停呼吸时记录以免受呼吸影响。

血液流变学检查在空腹时采血,用肝素抗凝,25°C水浴中静置10分钟后再测,全血粘度和血浆粘度采用毛细血管粘度计。

结 果

一、临床疗效:按1977年修订的慢性肺心病病情分级和疗效判断标准考核。本组显效8例,好转12例,无效6例,总有效率76.92%。部分患者用药1~3天后哮鸣音、喘息明显减轻,紫绀改善,水肿亦见消退。

二、治疗后右心功能变化,见表1。

1. PEP(射血前期):肺心病患者治前与健康人相比 PEP 显著延长,其中 $PEP \geq 0.15^{\text{秒}}$ 者

表1 丹参治疗26例肺心病右心功能变化 (M±SD)

		PEP(秒)	RVET(秒)	PEP/RVET	Q-Z(秒)
对 照 组		0.087 ± 0.005	0.329 ± 0.014	0.261 ± 0.020	0.158 ± 0.014
治 疗 组	治 前	0.133 ± 0.018	0.292 ± 0.019	0.460 ± 0.083	0.187 ± 0.014
	治 后	0.118 ± 0.017	0.304 ± 0.020	0.395 ± 0.084	0.176 ± 0.016
	P 值	<0.01	<0.05	<0.01	<0.05
治前与对照组 P值		<0.01	<0.01	<0.01	<0.01

表2 丹参治疗26例肺心病血液流变学变化 (M±SD)

		全血粘度 (比)	血浆粘度 (比)	红细胞电泳 (秒)	红细胞压积 (%)	血 沉 (mm/h)
对 照 组		4.16±0.44	1.60±0.09	19.41±2.15	39.29±4.96	16.94± 9.52
治 疗 组	治 前	4.85±0.49	1.64±0.12	22.33±2.33	44.85±5.62	15.27±12.77
	治 后	4.48±0.46	1.56±0.13	20.86±1.83	43.27±3.94	11.65± 7.22
	P 值	<0.01	<0.05	<0.05	>0.05	>0.05
治前与对照组比较 P值		<0.01	<0.05	<0.01	<0.01	>0.05

7例,经丹参治疗后PEP \geq 0.15者3例,均值明显缩短,提示丹参可使右室单位时间压力上升速度增快。

2. RVET (右室射血期): 肺心病患者治前与健康人相比 RVET 时间显著缩短,经治疗后 RVET 时间明显延长,提示右心每搏输出量增加。

3. PEP/RVET (射血前期/射血期比值): 肺心病患者由于 PEP 延长与 RVET 缩短,使 PEP/RVET 比值显著高于健康人,治前比值 \geq 0.49⁽¹⁾者9例,治后该比值 \geq 0.49者仅4例,均值明显下降,提示丹参可改善右心功能。

4. Q-Z 间期: 肺心病患者治前与健康人相比 Q-Z 时间显著延长,治后明显缩短,提示丹参可增强右室心肌收缩力及降低右心后负荷。

三、血液流变学检查: 治疗前后变化,见表2。

本组病例均值与健康人组相比,全血粘度、红细胞压积、红细胞电泳、血浆粘度显著增高。本组大于正常值者,全血粘度14例(53.85%),血浆粘度6例(23.08%),红细胞电泳14例(53.85%),红细胞压积12例(46.15%),血沉11例(42.31%)。经丹参治疗后,五项指标均有一定程度改善,均值以全血粘度、红细胞电泳和血浆粘度改善比较明显。治疗后仍高于正常值者全血粘度7例,血浆粘度6例,红细胞电泳6例,红细胞压积9例,血沉8例,好转率以全血粘度及红细胞电泳比较明显 ($P<0.05$)。

四、PEP 与血液流变学的关系: 本组测定结果,发现 PEP 与全血粘度呈高度正相关 ($r=0.84$, $P<0.01$), PEP 与红细胞压积呈正相关

($r=0.59$, $P<0.01$), 有较多资料认为 PEP 可作为肺动脉高压间接指标⁽²⁾, 由此推测全血粘度和红细胞压积的增加,可增高肺动脉压力。

讨 论

《证治汇补》中曾记载“肺胀者,动则喘满,气急息重,或左或右不得眠也,为痰挟瘀血碍气”。《血证论》中述“瘀血乘肺,咳逆喘促,鼻起烟煤,口目黑色”。

本组肺心病的原发病均系慢性阻塞性肺部疾病,慢性缺氧和肺部反复感染常引起红细胞增多,细胞表面电荷密度降低导致红细胞、血小板聚集,血液中纤维蛋白原增加,血液凝固性增高⁽³⁾。血液浓聚性的增加,导致血液流动性下降,血流受阻,与中医学“血瘀滞不行”较为相符。血流瘀滞、血液凝固性增加和血管壁损害,容易在肺小血管内形成微血栓。据国内外报告,慢性支气管炎、肺气肿、慢性呼吸衰竭病人病理检查肺动脉发现血栓者22~44%⁽⁴⁾,与中医学“内结为血瘀”,“血凝而不流”似有类同之处。本组资料发现右室射血前期(PEP)与全血粘度、红细胞压积呈正相关,间接反映血液流变性的改变,可使肺动脉压力增高。我们在肺心病急性感染控制后,采用丹参治疗,分析治疗前后右心功能和血液流变学指标的变化,进一步证明丹参可改善血液流变性,降低右心后负荷和加强心肌收缩力,具有“流通血脉”的作用。因此肺心病的治疗除积极治疗原发病、控制感染、纠正缺氧和酸血症等重要措施外,合理应用具有活血化瘀功能的中药,改善血液流变性和右心功能也属重要。

(下转219页)

The Effect of "Huo Xue Hua Yu" Drugs on Right Ventricular Function and Blood Rheology in Chronic Cor Pulmonale

Zhou Hongkui (周宏奎), Hong Zhongli (洪中立), et al

Ningbo Institute of Medical, Ningbo Third Hospital, Ningbo

Injection of Radix Salviae miltiorrhizae was given intravenously to 26 chronic cor pulmonale patients (23 men and 3 women) aged 51.2 ± 5.4 years in average, after the subsidence of acute infection. Their right ventricular function and blood rheology were improved significantly as follows: PEP time reduced from 0.133 ± 0.018 second to 0.118 ± 0.017 second; RVET time increased from 0.292 ± 0.019 second to 0.324 ± 0.020 second; PEP/RVET ratio decreased from 0.460 ± 0.083 to 0.395 ± 0.084 ; Q-Z time reduced from 0.187 ± 0.014 second to 0.176 ± 0.016 second. The whole blood viscosity and red corpuscle electrophoresis were also significantly improved ($P < 0.05$).

The study shows that "Huo Xue Hua Yu" drugs or drugs with action to activate blood circulation and relieve blood stasis can increase the myocardial contraction and reduce the after load of the right ventricle. There is a positive correlation between PEP time, whole blood viscosity and red corpuscle electrophoresis. The increase of whole blood viscosity and hematocrit may increase the pulmonary arterial pressure. (Original article on page 220)

The Treatment of Chronic Bronchitis with Tan Chuan Jing (痰喘净) —A Clinical Study of 300 Cases and Pharmacological Experiment

Wang Qingwen (王庆文), Li Longyun (李龙云)

Institute of Chinese Medicine and Materia Medica of the Jilin Province, Changchun

Tan CChuan Jing is a preparation consisting of volatile oil of Fructus Phellodendron amurense (黄柏果) and extract of *Sophora flavescens* (苦 参).

Phenol red tests revealed marked expectorant action of Tan Chuan Jing in mice. In guinea pig, the preparation showed evident spasmolytic action on tracheal spasm induced by histamin in vivo, but no antitussive effect was observed. LD₅₀ of the preparation was 2.969 ± 0.172 g/kg for mice; subacute toxicity tests showed that Tan Chuan Jing (po, 1 100mg/kg) delayed the growing of rats, but exerted no influence on routine blood test, CPT and BUN.

300 patients were treated with Tan Chuan Jing, each taking 2 capsules, two times a day during the coldest season. The patients treated with this preparation had a total effective rate of 97% with a prominent improvement rate of 65%. Tan Chuan Jing has marked expectorant, antiasthmatic and antiphlogistic effects, however, it has little antitussive effect. This preparation is applicable to both types of chronic bronchitis, simple and asthmatic, but it is more effective in treating the latter. Clinically, it showed no apparent toxic side effect.

(Original article on page 222)

The Compensative Effects of Chinese Drugs Invigorating Kidney or Spleen on Disturbed Ovarian Function of Adrenalectomized or Thyroidectomized Rats

Li Bingru (李炳如), She Yunchu (余运初)

Section of physiology, Jiangxi College of TCM, Nanchang

The weight of ovary and its binding capacity to ¹²⁵I-HCG of adrenalectomized adult female rats were significantly decreased as compared with the levels of sham-operation control rats. However, if the adrenalectomized rats were treated with Chinese drugs invigorating the kidney (Mankshood plus prepared Radix Rehmanniae) for five consecutive days, the weight of ovary and its binding capacity to ¹²⁵I-HCG returned nearly to the levels of sham-operation control group. If they were treated with Chinese drugs invigorating the spleen (Si Jun Zi Tang (四君子汤)) no effect was observed.

One month later the female rats were thyroidectomized, and those whose oxygen consumption was decreased by more than 30% were used for study. In these animals the weight of ovary, its specific capacity of binding ¹²⁵I-HCG, and the maximum ¹²⁵I-HCG binding (Bmax) were decreased as compared with the levels of the sham-operation control group, while the Kd value was increased. In those animals treated with Chinese drugs invigorating the kidney (Mankshood plus prepared Radix Rehmanniae, 1gm crude drug/100gm body wt.), the weight of ovary and the specific binding capacity to ¹²⁵I-HCG increased, the Kd value decreased and the Bmax slightly increased, therefore, the effects of thyroidectomy can be compensated.

The results obtained suggested that in adrenalectomized or thyroidectomized rats the function of HCG/LH receptor in ovary was decreased, which could effect the function of sexual gland. Chinese drugs invigorating kidney could improve the function of HCG/LH receptor in ovary, thus the responsibility of ovary to gonadotrophin was increased. This problem merits further study. (Original article on page 227)