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冠心病血瘀证患者体外血栓形成试验的观察

中国中医研究院西苑医院心血管病研究室

翁维良　姜成田　崔　晶　严以柄　李敬国

内容提要　本文报道冠心病血瘀证患者 65 例，采用体外血栓形成方法观察血栓长度、湿重、干重均较健康人明显增加，活血化瘀药川芎治疗后对体外血栓形成有抑制作用，并降低血小板的聚集性。

冠心病血瘀证患者血液常处于高凝状态[1,2]，血液粘滞性增高，血细胞及血小板聚集性增加。我们采用了反映血凝状态的体外血栓形成试验，进一步观察了冠心病患者的血瘀证及活血化瘀药川芎治疗后的变化，结果报告如下。

病例及方法

一、病例：本组病例为本院住院及门诊患者 65 例，按全国统一标准[3]，及中国中西医结合研究会活血化瘀专业委员会制定的血瘀证标准[4]，确诊为有血瘀证的冠心病心绞痛患者。65 例中，男性 36 例，年龄 58.11±6.69 岁(M±SD)，女性29 例，年龄 56.76±6.63 岁，其中合并高血压病10例，糖尿病 2 例，心律失常 4 例，慢性支气管炎 1 例。对照组健康人28例为本院工作人员。血瘀证患者中21例服活血化瘀药川芎合剂，每日 3 次，每次服量含有川芎生药15g，疗程 4 周，治疗前后作体外血栓形成试验及血小板聚集性试验。

二、测定方法：餐后 2 小时用硅化注射器取血 2 ml，立即注入聚乙烯管内(管内径 4mm，长 250mm)，使血液充入环 1/2 刻度处，将塑料管弯成环形，将环放入江苏无锡县电子仪器二厂制SDZ-A Ⅱ型体外血栓仪转环上，以 17±1 转/分转速转动，转环与地平夹角 76°，恒温 37°C。

当转环转动后，环内血液处于一定的平衡位置，在将要形成血栓的下弯月面附近开始是血小板颗粒出现，数秒后即出现血小板聚集，然后出现纤维蛋白丝形成血栓体。在血栓形成过程中，血柱移位，角度增大。10分钟后停止旋转，将血栓放在滤纸上吸干水份，测量长度，并用 JN-A 型精密扭力天平称重，即为血栓湿重。然后放入特制血栓烘干箱内，在64°C下20分钟，取出称重即为血栓干重。血小板表面活性与聚集性测定方法见前文报道[5]。

结　果

一、体外血栓形成的重复试验：为了观察本仪器的重复性，对 5 名血瘀患者作了连续 2 次（间隔时间 1 小时）体外血栓检测的结果比较。血栓长度 2 次分别为20.8±3.6 及 20.4±3.9mm，相差仅 2 %。血栓湿重分别为59.8±9.9mg 及 60.1±8.6mg，相差 0.5%，血栓干重分别为 11.8±1.9 及 12.2± 2.7mg，相差 3.3%，表明重复性较好。

二、健康人体外血栓形成试验：本组健康人为本院工作人员，男性 20 例，21～62 岁，体外血栓长度为 12.85±2.16mm，湿重 48.53±11.37mg，干重 9.3±2.52mg。女性 8 例，19～34岁，于月经前 1～2 天及月经后测定，体外血栓形成与月经有明显关系，月经前体外血栓长度为 22.38±5.26mm，月经后降为 16.5±3.82mm，干重分别为 15.84±4.30 及 9.99±1.10mg。表明月经前体外血栓长度、重量均增加，月经后恢复。

三、冠心病血瘀证体外血栓形成：冠心病血瘀证患者体外血栓长度为29.29±13.18mm，湿重90.08±33.47mg，干重 22.20±10.95mg，与健康人比较增长十分显著 ($P<0.01$)。

冠心病血瘀证患者形成的体外血栓，按照

健康人 M±SD 以内为正常范围，大于 M±SD 到M±2SD 为轻度增长，大于 M±2SD 为显著增长。65例中血栓长度增长的为62例占95%，其中显著增长58例占89%，血栓湿重增加56例占86%，其中显著增加的44例占68%，血栓干重增加的 61 例占 94%，其中显著增加 52 例占 80%。

四、川芎合剂治疗前后体外血栓及血小板聚集性的改变：川芎合剂治疗后体外血栓长度、湿重、干重均有显著缩短或减轻。血小板聚集性也有所减少(附表)。治疗前无 1 例血栓在正常范围内，而治疗后血栓长度缩短19例占90.5%，其中29%恢复正常，增加 2 例占9.5%。血栓干重减轻20例占95.2%，其中28%恢复正常，增加 1 例占 4.8%，表明川芎合剂治疗后对体外血栓形成有抑制作用。

附表 川芎合剂治疗前后体外血栓与血小板聚集性的改变

项目	例数	体外血栓			血小板聚集性		
		长度(mm)	湿重(mg)	干重(mg)	圆树型(%)	扩大型(%)	聚集数(个)
川芎合剂治疗前	21	32.24 ±10.15	101.12 ± 30.52	27.40 ±12.75	82.48 ±10.57	17.52 ±10.57	44.90 ±36.90
川芎合剂治疗后	21	23.86 ±10.48	70.93 ± 30.51	16.02 ± 7.23	88.88 ± 4.13	11.12 ±4.13	25.18 ±10.98
P值		均<0.01			均<0.05		

讨论与小结

冠心病血瘀证患者临床上常有血液流变性异常，微循环障碍及血流动力学异常。血液粘度测定、微循环检查、血小板及红细胞聚集性测定等方法常作为血瘀证客观检查的一项指标。为了进一步探讨血瘀证的实质，提供简便实用的血瘀证客观指标，我们选择了反映血液凝固性的体外血栓形成方法，参照 Chandlers 法[7]我们研制的配套体外血栓形成仪操作方便，具有较好的重复性，用于冠心病血瘀证患者检测发现其体外血栓长度、湿重、干重增加比健康人十分显著，长度增加例数达95%。其中显著增长占89%。湿重及干重增加分别为86%及94%。表明本方法可作为血瘀证诊断的一项客观检查指标。

冠心病血瘀证患者经用活血化瘀川芎合剂治疗后在症状好转的同时，有抑制体外血栓形成作用，其长度缩短，干重及湿重明显减轻，与治疗前比较差别显著，且有28～29%病例恢复正常。因此本方法尚可作为判断疗效的一项客观指标。实验表明川芎具有延长血栓形成时间作用。在血栓形成一开始就受到抑制，且可抑制纤维蛋白血栓形成的速度。对形成的血栓有使长度缩短、重量减轻作用[6]，与临床结果一致。表明川芎尚是一种抗栓药。因此临床上除治疗冠心病外可能对预防心脑血管病，减轻高血凝状态有一定作用。

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Thrombus Formation Test in Vitro of Patients with Symptoms of Blood Stasis in Coronary Heart Disease

Weng Weiliang (翁维良), et al
Xiyuan Hospital, China Academy of TCM, Beijing

There are quite a few common clinical symptoms of blood stasis in coronary heart disease. The patients' thrombus formation test in vitro showed that the wet and dry weight and length of thrombus increased in contrast to the normal group ($P<0.01$). After *Lingusticum wallichii* had been administered to 21 patients, the wet and dry weight of thrombus decreased ($P<0.01$). It was also found that the length of the thrombus was obviously shortened ($P<0.01$). The spread type platelet and number of aggregated platelets were reduced from 17.52 ± 10.57 to 11.12 ± 4.13 ($P<0.05$) and 44.9 ± 36.9 to 25.18 ± 10.98 ($P<0.05$) respectively.

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Pulse Patterns and Hemodynamic Changes in the Aged Patients

Zhang Jingren (张镜人), Wu Xiening (巫协宁), *Liu Zhaorong (柳兆荣), et al
Shanghai First People's Hospital; **Fudan University, Shanghai*

This analysis of pulse patterns and hemodynamics was based on the data of 115 aged patients according to elastic chamber theory. All of the four kinds of arterial compliances (C) were found to be reduced with increasing of age, which was probably correlated to the increase of systolic pressure in the aged person. In 80～90 age-group, Co and stroke volume were smallest, and the peripheral resistance highest. In 70～79 age-group, the mean values of the above three parameters approached those of the entire aged group. Co of wiry pulse was smallest, which was relevant to the degree of arteriosclerosis, and to the high age, high systolic, diastolic and pulse pressure. In those manifested as fine wiry pulse, their mean systolic and pulse pressure were lower, and Co was greatest, therefore the arteriosclerosis was less severe. In another three pulse patterns, the changes in peripheral resistance were in consistency with those of mean systolic and diastolic pressure. The peripheral resistance of wiry smooth pulse approached that of wiry pulse, therefore, wiry pulse is the main component and smooth pulse is secondary. The hemodynamic changes in the aged started from pre-aging period, increase of peripheral resistance and decrease of stroke volume occurred early, whereas lowering of Co occurred late, its mean value appeared markedly reduced after 65 years of age. The sphygmograms of wiry pulse of the aged person can be classified into seven types, among which oblique-wide type is most common. The higher the position of the junction between the predicrotic and the main waves, the severer would be the degree of arteriosclerosis, and this is of prognostic significance.

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A Clinical Study of Kang Bao Solution (康宝液) in the Treatment of Impairment of Cerebral Function — An Analysis of 67 Cases

Chen Kezhong (陈克忠), *Gong Chunping (公纯平), et al
Shandong Medical University, Jinan; **Yantai pharmaceutical Factory, Yantai*

This is a report of the clinical study of Kang Bao Solution (KBS) in the treatment of 67 patients with impairment of cerebral function. Subjective improvement of symptoms concerning impairment of cerebral function and objective signs such as audition, vision, temporary memory of graphs, hand tremor and cerebral biological age were used as indexes. This study revealed that KBS could markedly improve the cerebral function and the overall responsive rate was 85%. Based on the theory of traditional Chinese medicine, these 67 cases of impairment of cerebral function fell into 3 types: tending toward deficiency of Yang (阳), tending toward deficiency of Yin (阴), and deficiency of both Yang and Yin. KBS was effective in the treatment of these 3 types of deficiency. This indicates that KBS has 2 kinds of regulatory function. Clinical study and animal experiment have shown that KBS has the properties of promoting the cerebral blood flow, sedation, strengthening immunity, overcoming fatigue, increasing tolerance to anoxia and promoting sexual function.

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