DOI:10.16016/j.1000-5404.1996.02.016

red cell immune complex rosette rate (RICR) increased, red cell C_{3b} receptor flower inhibiting rate (RFIR) markedly elevated and red cell C_{3b} receptor flower enhancing rate (RFER) decreased. The findings suggest that there are secondary damages of the immune functions of red blood cells in patients with malignant hemopathy. The red cell immune functions could be partly recovered in the remission of acute leukemia which was still lower than that of the control ($P<0.05$) and were almost completely recovered in the remission of malignant lymphoma and multiple myeloma.

Key words leukemia/acute; malignant lymphoma; multiple myeloma; immune function/erythrocytic

偏头痛患者发作期TCD检测分析

Analysis of TCD examination in patients with migraine during attack

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偏头痛是一种周期性血管功能障碍的发作性疾病,头痛的发作或其先兆系颅内、外动脉异常舒缩所致。应用经颅多普勒(TCD)可以动态观察颅底血管内血流变化以及血管的舒缩功能,从而指导临床治疗。

1 资料与方法

男,78例,女,110例。年龄18～68岁,平均45岁。病程4月至14年。临床表现为发作性头痛,TCD检查均在发作期进行。

使用美国MEDNICS/COS型彩色TCD仪,用2MHz脉冲波探头,超声能量用200%。增益调至频窗可见,频谱图像清晰,输入电脑,自动计算出各数据。探测窗口选用"颞骨空口"和"枕骨大孔窗口",分别探测大脑中动脉(MCA)、大脑前动脉(ACA),大脑后动脉(PCA)、椎动脉(VA)、基底动脉(BA)。探测深度:MCA为45±5 mm,ACA为60±5 mm、PCA为65±5 mm、VA为50±10 m、BA为65±5 mm。

观察指标:收缩期血流速度的峰值,舒张期末流速、频谱形态、音频,参照徐绍彦的流速正常值[1]。

2 结果

188例受检者中有129例(68.6%)检测时,可见1支或数支血管有异常改变。表现为血流速度的增快,减慢,左右流速不对称及血管频谱形态的改变,如血管弹性的减退,血管张力的增高,音频的改变如收缩期杂音。见附表。

附表 188例患者TCD表现在各受检血管中的分布

TCD表现		测得多普勒信号的血管				
		MCA	ACA	PCA	VA	BA
血流速度变化	增快	38	19	7	19	14
	减慢	24	4	7	57	46
	左右不对称	7	3	4	11	1
	频谱异常	24	14	16	28	17
	音频异常	5	4	4	2	1
	正常	90	144	150	71	109

3 讨论

在头痛发作期检查,血流速度可增加或减慢(动脉扩张),部分患者无明显改变[2]。

3.1 血流速度增快

根据血液连续法则:一支血管在不具备有效侧支循环的情况下,发生狭窄或痉挛,致管腔的截面积减小,为维持其前后段的血流量相等,故管腔的截面积与血流速度成反比。严重的脑血管狭窄或痉挛,可使速度比正常人高出5～6倍。故TCD检出的血管血流速度增快,在一定程度上反映了该血管的狭窄或痉挛。

血管痉挛常见于血管性头痛患者。本组95例血管性头痛患者中,流速增快的占51%。

血管狭窄与痉挛所致的流速增快不同,前者流速加快呈节段性或有湍流信号等频谱改变,后者流速在整支血管中均增快,这在TCD中可以加鉴别。

3.2 血流速度减慢

一部分患者在头痛发作期表现为脑底血管血流速度降低,此时血管外周阻力增大,动脉弹性减弱,脑血管扩张,同时可由于血管痉挛,管腔变窄引起,而管腔变窄又必然导致脑血流量下降。

流速减慢最多发生在VA,且多见于中老年,一方面是VA起始处动脉粥样硬化斑块附着,或易发生附壁血栓,致局部血管狭窄;另一方面颈椎病压迫该段血管均可致流速减慢。另外血管性头痛患者血管扩张时或药物致脑血管扩张,流速也减慢,但这些患者流速呈动态变化。

3.3 血流速度左右不对称

左右不对称是指同一病人,同一类动脉,一侧流速高于另一侧,但流速均在正常范围内,相差>20 cm/s。这有可能是脑血管解剖变异,也可能是侧支循环所致,也可能是血管狭窄痉挛的程度不同导致流速发生变化。本组85例血管性头痛病侧中有13.3%流速不对称,35例颈椎病中8.2%流速不对称。

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(收稿: 1995-09-27; 修回: 1996-03-21)
(编辑 仇玉福)

Effects of L-arginine and N^G-monomethyl-L-arginine on the release of endothelium-derived relaxing factor in cultured endothelial cells of rats

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Abstract The purpose of our study was to look for a method for the detection of the release of the endothelium-derived relaxing factor (EDRF) by cultured endothelial cells (CECs) and the factors modulating the release of EDRF by CECs. The endothelial cells of the thoracic aorta of rats were cultured. The thoracic aortic ring of rats was isolated and the endothelium of the aortic ring was removed. The tension of this endothelium-removed aortic ring (ERAR) was determined after treated with various preparations of CEGs. It was found that pure CECs and CECs pretreated with acetylcholine (Ach) exerted no significant effect on the tension of ERAR; CECs pretreated with L-arginine (L-Arg) or L-Arg and Ach was able to result in marked vasodilatation of ERAR; CECs pretreated with N^G-monomethyl-L-arginine and Ach could bring about marked vasoconstriction of ERAR. Our findings suggest that the ability of CECs to synthesize and release EDRF is quite low or is even lost under basic condition or after the pretreatment with Ach due to possibly a shortage of the endogenous precursor of EDRF but the synthesis of EDRF by CECs is significantly promoted by the provision of L-Arg and the addition of Ach after the provision of L-Arg can further increase the release of EDRF.

Key words endothelial cell, culture; endothelium-derived relaxing factor; isolated aortic ring; acetylcholine; L-arginine; rat

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3.4 频谱形态的改变

典型性偏头痛多为频宽增大，普通型偏头痛多为频宽变小。多数流速增高者，频谱收缩峰锐利，S_1峰＞S_2峰，流速减慢者，频谱收缩峰圆钝，S_1峰＜S_2峰或S_1、S_2峰融合，α角度＜90°。

3.5 音频异常

表现为收缩期间粗糙而响亮的噪音性杂音，多数呈节段性改变，少数呈持续性改变。

目前认为偏头痛的发病机理是头颅血管及神经递质(5-羟色胺，血小板单胺氧化酶，徐缓激肽，游离脂肪酸等)的变化[3]。亦有文献强调颅内外血管运动障碍是导致偏头痛的重要原因。

偏头痛的 TCD 检测，为偏头痛病人治疗和预防性治疗提供了新依据。血流加速型偏头痛在头痛发作时不宜使用麦角类血管收缩剂，在预防性治疗时则以钙离子拮抗剂为首选，如尼莫地平等。TCD 的研究，可以对偏头痛的诊断，治疗及药物选择提供新的线索。

关键词 偏头痛；颅多普勒(TCD)检查
中图法分类号 R747.204

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(收稿: 1995-09-17; 修回: 1996-02-29)
(编辑 张大春)

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