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门静脉高压症脾切断流术后血栓形成的临床研究*

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摘要 目的:探讨门静脉高压症脾切断流术后门静脉系统血栓形成的相关原因。**方法:**回顾性分析2010年4月-2011年12月我科450例因肝硬化门静脉高压症行脾切断流术患者的临床资料,应用超声多普勒检测手术前后门静脉血流速度、门静脉直径及脾静脉、肠系膜上静脉、门静脉血栓情况,用Logistic回归分析术前肝功能Child-Pugh分级、门静脉直径、门静脉血流速度、脾脏的质量及术后血小板数量与门静脉系统血栓形成的关系。**结果:**术前门静脉系统有血栓患者75例,占16.7%。术后门静脉血栓再形成率52.9%。Logistic单因素分析提示门静脉系统血栓形成与门静脉内径、门静脉血流速度、脾脏质量、血清总胆红素、术后血小板数量有关。多因素分析发现门静脉系统血栓形成与门静脉内径、门静脉血流速度、脾脏质量有关,而与血清总胆红素、术后血小板数量无关。**结论:**肝硬化门静脉高压症脾切除术后门静脉系统血栓形成与门静脉内径、门静脉血流速度、脾脏质量有关。

关键词: 门静脉高压症;血栓形成;脾切断流术

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Clinical Study on Portal Vein Thrombosis after Splenectomy and Devascularization*

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ABSTRACT Objective: To investigate the related factors of the portal venous system thrombosis after the splenectomy and devascularization. **Methods:** A retrospective analysis was conducted on the clinical data of 450 patients with liver cirrhosis and portal hypertension admitted in our department from April 2010 to December 2011 who were applied splenectomy and devascularization. Ultrasonic Doppler was used to detect the blood velocity of portal vein, the diameter of portal vein, splenic vein, superior mesenteric vein and portal vein thrombosis before and after the operation. Logistic regression was used to analyze the correlations between the preoperative Child-Pugh classification of liver function, portal vein diameter, blood velocity of portal vein, spleen weight, postoperative platelet count and portal venous system thrombosis. **Results:** 75 patients had preoperative portal vein system thrombosis which was accounted for 16.7%. The rate of postoperative portal vein thrombosis formation was 52.9%. Single factor analysis of Logistic showed that the formation of portal venous system thrombosis was associated with portal vein diameter, blood velocity of portal vein, spleen weight, serum total bilirubin and postoperative platelet count. Multiple analysis have shown that the portal vein thrombosis was related to portal vein diameter, blood velocity of portal vein, spleen weight and had no relation to the number of total serum bilirubin or postoperative platelet. **Conclusions:** Portal vein thrombosis after splenectomy and devascularization was related to portal vein diameter, blood velocity of portal vein, and spleen weight.

Key words: Portal hypertension; Thrombosis; Splenectomy and devascularization

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前言

门静脉血栓(portal vein thrombosis, PVT)是发生在肠系膜上静脉、脾静脉、门静脉主干及左右支的门静脉系统的血管阻塞性疾病^[1]。按发病机制,PVT可分为原发性和继发性两种,原发性病因多见遗传性和获得性高凝,继发性病因主要为门静脉

血流缓慢和继发性疾病所致高凝。随着临床诊断技术的提高,PVT的检出率明显提高^[2-4]。目前研究表明门静脉高压患者PVT的发生率较高,多为脾切除术后形成。这是由于脾切除术后患者的红细胞凝集增加,全血粘滞度、血浆粘滞度增加,血管内膜损伤胶原纤维暴露,激活凝血系统,脾静脉残端盲袋形成,导致血流动力学改变,门静脉压力下降,血流速度变慢,易形成

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血栓^[5,6]。目前国内对脾切除术后血栓形成的机率、因素的研究较少。因此,本研究通过大样本多因素分析,探讨脾切断流术后门静脉系统血栓形成率的相关因素。

1 资料和方法

1.1 一般资料

回顾分析 2010.4-2011.12 我院肝胆外科收治的行脾切除术治疗的肝硬化门静脉高压症患者 450 例,其中男性 255 例,女性 195 例;年龄 12-68 岁,平均年龄 50.5 岁。包括乙型肝炎肝硬化 390 例,丙型肝炎肝硬化 17 例,酒精性肝硬化 18 例,原发性胆汁性肝硬化 15 例,特发性肝硬化 10 例。全组 450 例患者中有 428 患者有 1-8 次不等的上消化道出血史,术前胃镜提示食道胃底静脉曲张中-重度。术前肝功 Child A 级患者 385 例,Child B 级患者 65 例。

1.2 方法

患者于术前、术后 1 天、3 天、7 天、14 天分别抽血化验血常规、肝功能、凝血等。应用日本 ALOKA 和德国 SIEMENS 多普勒超声测量仪分别于术前、术后 1 天、3 天、5 天、7 天、14 天监测门静脉系统。测量前患者禁食 2 小时,取仰卧位,测量门静脉主干直径、血流速度,根据血管截面和平均血流速度计算血流量,同时观察门静脉系统血栓情况,有疑问行 CT 三维重建进一步明确。术中均结扎脾动脉,切除后测量脾脏重量包括脾血重量^[7]。

1.3 统计学处理

采用 SPSS11.0 统计软件包进行统计分析,Logistic 回归分析各指标的关系,采用 χ^2 检验,数据采用两样本 t 检验,以

$P<0.05$ 为差异具有统计学意义。

2 结果

术前 CT 三维重建显示,450 例患者中 75 例有门静脉系统血栓,血栓形成率为 16.7%。术后超声检测结果显示,共有 238 例门静脉血栓形成,发生率为 52.9%,其中门静脉主干 188 例(41.8%)、门静脉左支 72 例(16%)、门静脉右支 67 例(14.9%)。本组有两例急性门静脉完全栓塞,大量腹水,经门静脉穿刺取栓及置管溶栓后恢复,无肠坏死等严重并发症发生。单因素分析发现,门静脉系统血栓的形成与病人的性别、年龄、肝功能 Child-Pugh 分级、血清白蛋白、凝血酶原时间延长等因素无关;与门静脉内径、门静脉血流速度、脾脏质量、血清总胆红素、术后血小板数量有关。多因素分析发现门静脉系统血栓形成与门静脉直径、门静脉血流速度、脾脏质量有关,而与血清总胆红素、术后血小板数量无关(表 1、图 1)。

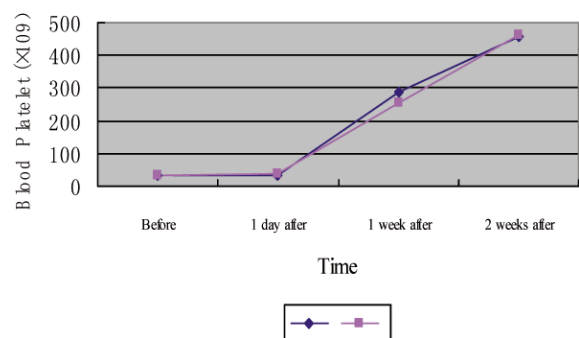


图 1 血栓组与无血栓组血小板变化

Fig.1 Changes of blood platelet in group with and without thrombus

表 1 各变量与门静脉系统血栓形成的关系

Table 1 Correlation variables of the portal vein thrombosis

	Thrombus(n=238)	Non-thrombus(n=212)	P
Age	50(18-65)	48(14-69)	0.256
Gender(M/F)	152/86	148/64	0.105
Child-Pugh classification	A:208 B:30	A:195 B:17	0.156
Preoperative portal venous blood flow velocity(cm/s)	17.65± 6.83	17.03± 6.57	0.798
Postoperative portal venous blood flow velocity(cm/s)	9.45± 3.56	12.05± 4.23	0.432
Portal vein diameter(mm)	16.98± 2.78	14.23± 2.12	0.231
Spleen weight(Kg)	1.63± 0.21	1.45± 0.18	0.003
ALB(g/L)	33.42± 3.56	34.42± 4.08	0.876
T-BiL(ummol/L)	33.65± 13.75	28.63± 12.91	0.531
Proloned clotting time(s)	4.48± 2.62	4.15± 3.97	0.781
PLT 1 day after the operation(×10 ⁹)	34.83± 11.61	31.67± 12.34	0.687
PLT 1 week after the operation(×10 ⁹)	221.66± 132.22	185.36± 113.33	0.875
PLT 2 weeks after the operation(×10 ⁹)	365.65± 128.45	332.45± 119.65	0.657

3 讨论

目前,脾切断流术是肝硬化门静脉高压脾功能亢进患者的首选治疗方法,不仅能够矫正脾功能亢进,还可减少门静脉血

流量,从而降低门静脉压力^[8]。但是脾切断流术后较为严重的并发症之一是门静脉系统血栓,严重影响患者的术后生存质量^[9]。国内外有报道称,脾切除术后 PVT 发生率高达 22.0%,甚至更高^[10]。本研究血栓总发生率为 52.9%,分析原因可能为:①门静

脉血液淤滞、门静脉系统处于高阻、低流速状态;②肝硬化患者的肝脏合成带蛋白质的功能降低,凝血因子和抗凝血酶低下,清除组织纤溶酶原激活物的能力下降,从而导致血液处于高凝状态;③肝脏结构的改变、门静脉周围淋巴管炎和纤维化等^[13-15]。有研究认为,脾切断流术后门静脉系统血栓形成的临床表现与其形成的急缓和程度有关。急性期门静脉系统血栓形成主要表现为不明原因发热、腹膜炎、大量腹水,甚至肠缺血、坏死^[20]。慢性期门静脉系统血栓形成会造成门静脉入肝血流减少,肝功能受损,甚至肝功能衰竭,门静脉压力增高,导致食管胃底静脉再次破裂出血^[16,19]。

针对上述危险因素,本研究选取年龄、性别、肝功能 Child-Pugh 分级、门静脉内径、门静脉血流速度、脾脏质量、血清总胆红素、血清白蛋白(g/L)、血清总胆红素($\mu\text{mol/L}$)、术后血小板数量作为研究对象,并进行回归性分析,单因素分析提示门静脉系统血栓形成与门静脉内径、门静脉血流速度、脾脏质量、血清总胆红素、术后血小板数量有关。Logistic 多因素分析发现门静脉系统血栓形成与门静脉内径、门静脉血流速度、脾脏质量有关,而与血清总胆红素、术后血小板数量无关。回顾既往研究,我们发现在断流术切脾时,若脾静脉与胰腺体尾部紧密粘连,那么脾静脉结扎尽很难广泛游离^[18]。因此,我们建议手术中使用 Proline 线缝扎脾蒂,避免脾蒂大块结扎造成血管内膜损伤而使胶原纤维暴露。术后使用阿司匹林、右旋糖酐、肝素等,以降低术后血浆黏度、红细胞聚集指数及血小板数升高的几率^[17]。本研究显示虽然术后血小板升高明显,但血栓组间与无血栓组之间无统计学差异,故而推断 PVT 形成可能与血小板数量无关,而与血小板功能异常有关。

综上所述,肝硬化门静脉高压症脾切断流术后门静脉系统血栓形成原因很多,如何降低脾切断流术后门静脉系统血栓形成率还需进一步探索。

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