

• 临床研究 Clinical research •

冠状动脉支架内血栓形成患者的危险因素及预后

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【摘要】 目的 分析冠状动脉药物涂层支架术后支架内血栓形成患者的危险因素及预后。**方法** 回顾性分析 2006 年 7 月到 2012 年 3 月冠脉支架内血栓形成的患者 39 例,并按 1:2 配对抽取同期复查冠脉造影术未见支架内再狭窄患者 78 例,作为对照组从中分析术后支架内血栓形成的危险因素。**结果** 首发为急性心肌梗死、罪犯血管的支架直径及长度、术前左室射血分数(LVEF)低(<50%)与支架内血栓形成相关。选择再次行急性经皮冠脉介入术(PCI)者 33 例,1 例术后在院内死亡,余 32 例好转出院。**结论** 首发为急性心肌梗死、植入罪犯血管支架的直径较小及长度较长、术前 LVEF 低(<50%)是支架血栓形成的独立危险因素。支架长度 ≥ 29.5 mm 或支架直径 ≤ 2.94 mm 与较高的支架内血栓的发生率相关。药物涂层支架术后发生支架内血栓的患者多表现为急性心肌梗死,发生支架内血栓后死亡率高,但早期行急性 PCI 是安全、有效的治疗。

【关键词】 冠状动脉疾病; 药物涂层支架; 支架内血栓; 危险因素

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【Abstract】 Objective To analyze the risk factors and prognosis of patients with coronary stent thrombosis (ST) after receiving percutaneous coronary drug-eluting stent implantation. **Methods** Clinical data of 39 patients with ST, who were encountered at author's hospital during the period from July 2006 to March 2012, were retrospectively analyzed. With 1:2 pairing selection, 78 patients with no stent restenosis on coronary angiography encountered during the same period were collected and used as the control group. The risk factors of postoperative stent thrombosis were analyzed. **Results** Acute myocardial infarction (AMI) as the initial onset, the smaller stent diameter (≤ 2.94 mm), the longer length (≥ 29.5 mm) and the lower (<50%) preoperative left ventricular ejection fraction (EF) were related to the occurrence of stent thrombosis. Emergency coronary intervention was carried out once more in 33 patients, of whom one patient died during hospitalization period and the remaining 32 patients recovered at the time of discharge. **Conclusion** AMI as initial onset, smaller stent diameter, longer stent length and lower preoperative EF (<50%) are independent predictors of coronary stent thrombosis. Stent length ≥ 29.5 mm and stent diameter ≤ 2.94 mm are associated with higher occurrence of coronary stent thrombosis. Clinically, most patients with coronary stent thrombosis after receiving percutaneous coronary drug-eluting stent implantation are manifested as AMI. The mortality is higher when stent thrombosis occurs. For such patients emergency coronary intervention is safe and effective. (J Intervent Radiol, 2016, 25: 160-163)

【Key words】 coronary artery disease; drug-eluting stent; stent thrombosis; risk factor

冠状动脉药物洗脱支架显著减少内膜增生和再狭窄发生率,改善患者症状,提高生活质量,已大规模应用于冠心病患者的介入治疗。支架内血栓形

成的发生越来越受到临床医师的重视,虽其发生率较低,文献报道在 1%~2%^[1-3],但其后果可能是致死性的,往往表现为心电图 ST 段抬高性心肌梗死或心源性休克,其所致的医院内病死率为 18%、出院 1 年内的病死率为 25%^[4-6]。支架内血栓的形成同时也增加了再次 PCI 的次数,加重患者的经济负担。现结合我院药物洗脱支架植入术后血栓形成患者,

分析支架内血栓形成发生的危险因素,为临床 PCI 术后支架内血栓形成的预防提供借鉴。

1 材料与方法

1.1 一般资料及方法

回顾性分析 2006 年 7 月至 2012 年 3 月于我院冠脉支架内血栓形成的患者 39 例。并抽取同期复查冠脉造影术未见支架内再狭窄患者,按年龄、性别进行配对,按 1:2 选取选取 78 例作为对照组。

1.2 临床定义

支架内血栓形成患者的确诊依据 2007 年 ARC 提出的支架内血栓的扩展定义^[7]。

1.3 统计学处理

应用 SPSS 17.0 软件进行数据统计,计量资料用均数±标准差表示,计量资料采用两样本 *t* 检验;计数资料用率和百分比表示,采用 χ^2 检验。采用单因素分析支架内血栓形成形成的危险因素,将支架内血栓形成危险因素行多因素 logistic 回归分析。用 ROC 曲线寻找与 ST 事件相关的最优值。 $P < 0.05$ 为差异有统计学意义。

表 1 支架内血栓形成与对照组临床特征的比较

项目	观察组(n=39)	对照组(n=78)	P 值
高血压/n(%)	23(60.0)	32(41.0)	0.067
糖尿病/n(%)	11(28.2)	16(20.5)	0.296
血脂异常/n(%)	24(61.5)	40(51.3)	0.238
慢性肾功能不全/n(%)	4(10.2)	7(9.0)	0.832
LVEF<50%/n(%)	28(71.8)	18(23.1)	0.000
首发临床诊断 MI/n(%)	23(58.9)	20(25.6)	0.001
TypeB2/C 型/n(%)	34(87.2)	56(71.8)	0.063
左主干斑块/n(%)	12(30.7)	13(16.7)	0.079
罪犯血管位于前降支/n(%)	17(43.5)	21(26.9)	0.000
平均支架直径/mm	2.87±0.29	3.18±0.48	0.000
平均支架长度/mm	35.9±13.2	29.6±13.0	0.015
支架数量/枚	1.31±0.52	1.19±0.40	0.185

LVEF:左室射血分数

表 2 支架内血栓形成患者危险因素的多因素 logistic 回归分析

项目	χ^2	P 值	OR	95%置信区间
罪犯血管位于前降支	5.429	0.124	5.429	2.360~12.484
支架长度	41.273	0.039	2.533	1.225~11.262
支架直径	17.499	0.041	1.915	1.072~2.298
LVEF(<50%)	8.940	0.030	3.659	2.024~6.616
首要诊断 MI	8.756	0.003	1.607	1.010~2.556

MI:心肌梗死

2 结果

2.1 支架内血栓形成患者的治疗及预后

1 例发作急性左心衰竭,急诊科抢救无效死亡。选择急症 PCI 者 33 例,其中 1 例术后在院内死亡,

余 32 例好转出院。溶栓者 1 例(后择期行 PCI 术),好转出院。保守治疗者 4 例,其中 2 例发生急性左心衰抢救无效死亡。

2.2 支架内血栓形成的危险因素

首发为急性心肌梗死、罪犯血管的直径及长度、术前左室射血分数(LVEF)低(<50%)及罪犯血管位于前降支为支架内血栓形成的危险因素,行多因素 logistic 回归分析显示:急性心肌梗死、罪犯血管的直径及长度、术前左室射血分数(LVEF)低(<50%)为支架内血栓形成的独立危险因素。用 ROC 曲线寻找支架长度预测支架内血栓形成事件的最优值(图 1),ROC 曲线下的面积为 0.684(95%置信区间:0.588~0.779, $P < 0.001$),植入罪犯血管的支架长度为 29.5 mm 为预测支架内血栓形成事件的最优值。同样,用 ROC 分析支架直径在预测支架内血栓形成事件的最优值(图 2),ROC 曲线下的面积为 0.710(95%置信区间:0.614~0.807, $P < 0.001$),植入罪犯血管的支架直径为 2.94 mm 为预测支架内血栓形成事件的最优值。支架长度 ≥ 29.5 mm 或支架直径 ≤ 2.94 mm 与较高的支架内血栓形成的发生率相关。

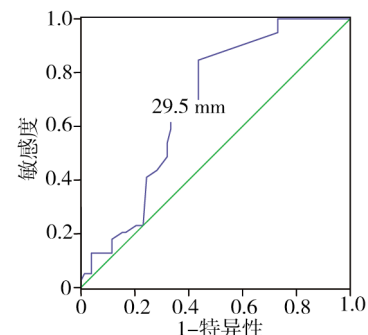


图 1 ROC 曲线显示,植入罪犯血管支架长度为 29.5 mm 为预测支架内血栓形成事件最优值

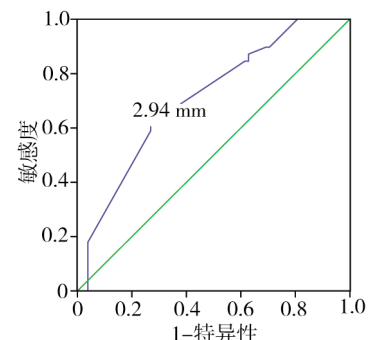


图 2 ROC 曲线显示,植入罪犯血管的支架直径为 2.94 mm 为预测支架内血栓形成事件最优值

3 讨论

在 ESTROFA 研究^[8]中,STEMI 是支架内血栓形成患者的最强预测因子,本研究显示首发的急性心肌梗死患者支架内血栓形成发生的风险增加 1.6 倍。本研究提示:LVEF 小于 50% 是另一个较强的危险因素,LVEF<50% 者发生支架内血栓形成事件的风险增加 3.7 倍。有研究^[9]表明低 LVEF 是支架内血栓形成的独立危险因素,本研究结果与上述研究结果一致。国内亦有研究提示低 LVEF 与支架内再狭窄有关^[10]。有研究证实支架的长度是药物洗脱支架术后支架内血栓形成、死亡及与支架非相关的急性心肌梗死的独立危险因素,支架长度 ≥ 31.5 mm 时,支架内血栓形成事件明显增加^[11]。本研究亦显示:支架长度为支架内血栓形成的独立危险因素,行 ROC 曲线显示:支架长度 ≥ 29.5 mm 时,支架内血栓形成事件明显增加。较长的支架与较高的支架内血栓形成发生风险相关。对罪犯血管植入的药物涂层支架越长、直径越小,支架内血栓形成发生的可能性越大^[12]。本研究得出的植入支架长度及支架直径与支架内血栓形成事件的最优值与文献报道有差异,原因可能受入选支架内血栓形成患者的样本量少有关,需行多中心、大规模研究或临床荟萃研究进一步明确其最优值。本研究入选的急性及亚急性支架内血栓形成患者都规律服用双联抗血小板治疗(DAT),只有个别晚期及极晚期患者有漏服抗血小板药物情况,由于未发生支架内血栓形成的对照组患者也存在个别短期或长期停用抗血小板药物的情况,未将停用抗血小板药物进行多因素回归分析,但较多文献证实停用 DAT(尤其是氯吡格雷)是急性及亚急性支架内血栓形成的重要危险因素之一^[13-14]。有较多的 PCI 术后患者坚持 DAT 治疗仍发生支架内血栓形成事件,故坚持服用抗血小板药物是预防支架内血栓形成发生必需但非充分措施。支架内血栓形成的形成与多因素有关,如氯吡格雷减量、支架贴壁不良、患者对 DAT 反应性差以及血管病变特征及手术操作^[15]。故如何减少支架内血栓形成的发生,成为国内及国外的热点研究,PCI 术后增加氯吡格雷的维持剂量^[16-17]、换用替格瑞洛^[18]、新型的洗脱支架都可减少支架内血栓的发生^[19]。PCI 策略的选择也同样需重视。再次急症介入治疗是治疗支架内血栓形成最为快捷有效的方法。

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·临床研究 Clinical research·

17 例颅外段脑动脉夹层患者治疗分析

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【摘要】 目的 探讨颅外段脑动脉夹层(CAD)临床特点及其治疗方法。**方法** 回顾性分析 17 例颅外段 CAD 患者的临床资料。临床表现由夹层发生位置及受累血管所决定, 根据患者不同病因、不同临床特点、不同治疗方法分别归入抗凝组($n=13$)和双抗血小板聚集组($n=4$)。治疗 6 个月后随访复查 DSA。**结果** 治疗 6 个月后 DSA 显示抗凝组 8 例患者夹层好转或再通, 5 例患者夹层无好转或闭塞, 但均无症状加重; 双抗血小板聚集组 4 例患者均有再通, 其中 2 例治疗 3~6 周后接受自膨式支架联合球扩式支架植入术修复血管, 术后继续双抗血小板聚集治疗, 6 个月后复查 DSA 支架通畅, 无动脉内膜过度增生。**结论** 临床症状决定了 CAD 发现概率, 也可提示部分 CAD 病因。本组患者椎动脉夹层发病率并不低于颈内动脉夹层。颅外段 CAD 治疗应以内科一线治疗为基础, 抗凝与抗血小板聚集治疗结果无明显差异, 2 例抗血小板聚集治疗患者经支架植入后疗效明确。

【关键词】 颅外段脑动脉夹层; 血管造影术, 数字减影; 治疗分析

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Extracranial cerebral artery dissection: therapeutic analysis of 17 cases WEI Jie, LIU Jie-yi, WU Yujun, GENG Chang-ming, KONG Xiao-dong. Department of Neurology, No.85 Hospital of People's Liberation Army, Shanghai 200052, China

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【Abstract】 Objective To investigate the clinical features of extracranial cerebral artery dissection (CAD) and to discuss its treatment. **Methods** The clinical data of 17 patients with extracranial CAD were retrospectively analyzed. The clinical manifestations depended on the location of the dissection and the affected vessels. According to different causes, different clinical characteristics and different treatment methods, the patients were divided into the anticoagulation group ($n=13$) and dual antiplatelet aggregation group ($n=4$). Follow-up DSA examination was conducted at 6 months after treatment. **Results** DSA performed at 6 months after the treatment showed that the artery dissection was improved or recanalized in 8 patients of anticoagulation group, while arterial occlusion was not improved or even became occluded in 5 patients of anticoagulation group, although no aggravation of symptoms was observed in these patients. In dual antiplatelet aggregation group, recanalization was obtained in 4 patients, among them 2 patients received implantation of self-expandable stent together with balloon-expandable stent for vascular repair at 3~6 weeks after antiplatelet treatment, and dual antiplatelet therapy was continued after stent implantation. DSA