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大隐静脉顺行序贯式吻合技术在冠心病患者中的应用

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摘要 目的：探讨大隐静脉(SVG)顺行序贯式吻合技术在冠心病患者中的应用价值。**方法：**收集我院 2011 年 1 月至 2014 年 6 月收治的 78 例冠心病患者，回顾性分析患者非体外循环下行 SVG 顺行序贯式冠状动脉旁路移植术患者的临床资料，术后随访 1~3.5 年，平均(2.1± 1.5)年，密切观察患者治疗效果以及相应的并发症的发生情况。**结果：**SVG 双支桥 48 例，三支桥 20 例，四支桥 10 例，吻合口共 196 个。术后测定近段血流流速(37.14± 11.78)mL/min，搏动指数(PI)值(3.00± 1.25)。术后出现 2 例低心排血量综合征，2 例迟发性心脏压塞，除 1 例因序贯出现多脏器功能衰竭而死亡外，其余均痊愈。术后复查，SVG 桥的通畅率为 100%。**结论：**SVG 顺行序贯吻合能尽快恢复心脏供血，术后通畅率高，在医生严格掌握手术技巧的前提下，可安全用于冠心病的治疗。

关键词：冠心病；大隐静脉；序贯式吻合；顺行；冠状动脉旁路移植术

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Application of Anterograde Sequential Anastomosis of Great Saphenous Vein for the Patients with Coronary Heart Disease

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ABSTRACT Objective: To investigate the value of anterograde sequential anastomosis of great saphenous vein (SVG) for the patients with coronary heart disease (CHD). **Methods:** The clinical data of 78 cases of patients with coronary heart disease in our hospital from January 2011 to June 2014 were retrospectively analyzed. They were given non cardiopulmonary bypass SVG antegrade sequential coronary artery bypass graft surgery, postoperatively followed-up for 1~3.5 years, the treatment effect and corresponding complications were observed. **Results:** 48 cases were with double bridges, 20 cases were with three bridges, 10 cases were with four bridges, and anastomotic stoma was 196 in total. The blood flow velocity was (37.14± 11.78)mL/min and pulsatility index (PI) was (3.00± 1.25)after operation. Low cardiac output syndrome was found in 2 cases, delayed cardiac tamponade was found in 2 cases, except 1 case died because of sequential multiple organ failure, all others recovered. The patency rate of SVG bridge was 100% in postoperative review. **Conclusions:** SVG antegrade sequential anastomosis can restore the blood supply to the heart as soon as possible, and the patency rate is high, which can be safely used in the treatment of coronary heart disease under the premise that doctors have strict surgical skills.

Key words: Coronary heart disease; Great saphenous vein; Sequential anastomosis; Antegrade; Coronary artery bypass grafting

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前言

冠状动脉旁路移植术 (Coronary Artery Bypass Graftin，CABG) 是国际公认的治疗冠心病三支病变或左主干病变的有效方法[1,2]，临床上常使用大隐静脉(saphenousgreat vein，SVG)作为移植材料[3]。SVG 的吻合包括两种方法，即单支桥与序贯桥。序贯桥具有减少吻合口、节约桥血管长度、再血管化更充分、远期通畅率高等优点[4,5]。一项荟萃分析显示[6,7]SVG 贯桥的中远期通畅率高于单支桥[3]。在用 SVG 行 CABG 时，临床医生的习惯做法是从远至近序贯吻合，即先做桥血管远端与冠状动脉的吻合，再做桥血管近端与主动脉的吻合。而有研究者提出了先吻合桥血管近端的顺行序贯式吻合术，这种方法虽然具有一些明显的优点[8,9]，但具体的效果目前尚缺乏研究报道。本研究主要探讨了 SVG 顺行序贯式吻合技术在冠心病患者中的应用价值。

1 资料与方法

1.1 临床资料

回顾性分析我院 2011 年 1 月至 2014 年 6 月收治的 78 例冠心病患者的临床资料，纳入标准[10]：① 经 CT 血管造影(CT

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angiography,CTA)检查证实冠状动脉三支病变;① 首次在非体外循环下完成 CABG 治疗;② 心功能 NYHA 分级Ⅰ~Ⅲ级;③ 签署手术同意书。排除标准[11]:① 在体外循环下完成的 CABG;② 同期行心瓣膜置换手术等其它心脏手术;③ 合并严重肝、肾疾病、恶性肿瘤等;④ 术后不按医嘱正确服用抗血小板药物者。其中,男 42 例,女 36 例,年龄 47~76 岁,平均(68.3± 7.15)岁;术前合并高血脂 28 例,高血压 57 例,糖尿病 13 例,陈旧性心肌梗死 19 例。

1.2 手术方法

手术的目的是完全再血管化。以带蒂左乳内动脉和 SVG 作为移植材料,因桡动脉术中易发生动脉痉挛而未用[12,13]。气管内插管静脉复合全身麻醉,全身肝素化(1 mg/kg),胸骨正中切口开胸,显露靶血管。移植的策略是:选择质量好的蒂左乳内动脉与左前降支吻合,其它病变血管采用 SVG 序贯吻合。序贯吻合采用左前降支系统、回旋支系统、右冠状动脉系统的顺序,中间吻合口采用 SVG 与冠状动脉的侧侧吻合,最末端采用 SVG 与冠状动脉的端侧吻合。最远端吻合口最好选在条件好的靶血管上,而尽量将条件差的靶血管置于桥中间。远端吻合用 8-0 Prolene 单根线缝合技术,近端吻合用 6-0 Prolene 单根线缝合技术。术后呼吸机辅助呼吸,密切监测生命体征、心电图,维持动脉血压>100 mmHg,确保冠状动脉及 SVG 桥的灌注。术后静脉应用硝酸酯类及正性肌力药等,术后 1 d 起开始长期规律服用阿司匹林及氯吡格雷进行抗血小板治疗,并酌情服用强心利尿、降压、调脂类药。动脉血压平稳后,在移植血管的近段测定血流、波形及搏动指数(Pulsatility index,PI)。

1.3 术后随访

术后随访 1~3.5 年,平均(2.1± 1.5)年,经 MSCTA 检查评估患者移植血管的通畅性,按 Fitzgobbon 标准,认为无狭窄或狭窄<50%为通畅[14,15]。

2 结果

本组手术时间 (238.10± 19.27)min,SVG 双支桥 48 例,三支桥 20 例,四支桥 10 例,吻合口共 196 个。近段血流流速(37.14± 11.78)mL/min,PI 值(3.00± 1.25)。术后 24 h 纵隔引流量(427.83± 158.34)mL,呼吸机辅助呼吸时间(12.57± 3.18)h,ICU 监护时间(25.08± 5.72)h。术后低心排血量综合征(LCOS)2 例,其中 1 例经药物治疗痊愈,另 1 例药物治疗无效改置入主动脉内球囊反搏(IABP)痊愈。2 例迟发性心脏压塞(LCT),及时行心包穿刺置管引流术,1 例行左侧心包开窗术,1 例因序贯出现多脏器功能衰竭而死亡。术后随访无脱落者,MSCTA 提示 SVG 桥均通畅,通畅率为 100%。

3 讨论

尽快重建冠脉血流、恢复心脏供血、减轻心肌细胞损伤、抑制心肌梗死加重是治疗冠心病的主要策略[16,17]。在非体外循环下行 CABG 不仅能够与体外循环一样满足冠脉狭窄远端区域的血供,而且还能避免心脏停跳及并发症,特别适用于高龄、重要脏器功能不全以及有体外循环高风险的患者[18,19],近年已逐渐被国际所接受。虽然在移植物取材上以乳内动脉最佳,但取材有限,所以目前常用的是乳内动脉 -SVG 复合桥[20,21]。一般将乳内动脉移植于左前降支,而将 SVG 移植于其它靶血管[22]。

在序贯式吻合下行 CABG 时,目前习惯的做法是从远至近序贯吻合,即按右冠状动脉系统、回旋支系统、左前降支系统[23]。而先吻合桥血管近端则具有几点明显的优势[24,25]:① 先用蒂左乳内动脉与左前降支吻合,能够尽快改善前降支的血运,有利于在之后的操作中心脏能够耐受;② 之后用 SVG 顺行序贯式吻合靶血管,每做完一个吻合口,该段冠状动脉的血运就可得到恢复,从而依次吻合,当全部吻合完时也是血供完全恢复的时刻,在这个过程中,心肌缺血缺氧状态可得到逐步的改善,再灌注损伤逐步减轻,最后得到的血流灌注是最接近于 " 自然 " 灌注。而若先进行远端吻合,每做完一个吻合口后就徒手用氧合血从桥血管近段灌注 1~3 次,为非连续性灌注,并且难以控制灌注的流量与压力,操作繁复不说而且效果不如 " 自然 " 灌注[26,27];③ 节省桥血管材料,减少主动脉吻合口,从而也就有利于减少对主动脉钳夹、打孔等操作带来的损伤,减少并发症,特别是对主动脉硬化、斑块多的患者更受益。SVG" 顺行序贯式 " 吻合术适用于非体外循环 CABG 术,尤其是对桥血管质量的患者差更有意义[28,29]。

本组患者应用 SVG 顺行序贯吻合技术,随着手术的进行,心脏供血得到逐步改善,近段血流流速能够达到(37.14± 11.78)ml/min,PI 值(3.00± 1.25),整个过程均在非体外循环下完成,无术中转体外循环者。术后出现 LCOS 和 LCT 各 2 例,其中 3 例均成功治愈,另 1 例 LCT 虽然予以及时的穿刺引流和机械通气,但因序贯出现多脏器功能衰竭而死亡,其余患者均安全度过围手术期。术后要进行长期的抗血小板治疗,而阿司匹林联合氯吡格雷对改善预后的疗效已被大规模多中心临床试验所证实[30]。术后通过症状及心电图改变是无法准确反映移植血管桥的通畅性,而可通过 CTA 复查,术后随访 ~3.5 年,所有患者的移植桥均通畅。

综上,用 SVG 顺行序贯吻合技术行 CABG 能尽快恢复心脏供血,术后通畅率高,不失为一种安全、有效的手术方法。但对临床医生的吻合技术要求高,需合理安排吻合口,准确把握不同角度吻合口的操作技巧及吻合口间的移植桥长度,要尽量减轻或避免缺血缺氧损伤与器械操作损伤,小心翻动心脏,避免频繁翻动心脏。为了能够显露冠状动脉的主要分支,可变换手术床的位置并在心包腔内用纱布垫,这样既方便手术操作,又可减小对心脏血液循环的干扰,比用纱布条、网牵拉或用手牵扶更好。左前降支血管桥被称为 " 生命之桥 ",最好用带蒂左乳内动脉吻合,如果情况不允许,可用游离桥血管先近端吻合升主动脉,再吻合左前降支[30]。吻合后降支时最好选择头低脚高位[11]。掌握高超的吻合技术无捷径可走,只有通过平日加强辅助练习,并不断积累经验。本研究随访时间稍短,至于 SVG 顺行序贯吻合技术的远期效果如何还需更多的随访加以证实。

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