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血管内介入治疗颈动脉、椎动脉狭窄的临床疗效和安全性

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摘要 目的:研究血管内介入治疗颈动脉、椎动脉狭窄的临床疗效和安全性。**方法:**选择 2011 年 3 月~2016 年 3 月在我院进行诊治的 210 例颈动脉和椎动脉狭窄患者狭窄程度在 70%~99% 之间,颈、椎动脉直径狭窄率超过 70%,所有患者均进行了血管内介入治疗,观察患者的临床表现、DSA 和血管超声检查结果和围手术期并发症,并进行随访。**结果:**经颈部血管听诊发现,有 163 例(77.62%)患者出现血管杂音,合并高血压 103 例(49.05%)、高脂血症 123 例(58.57%)、吸烟 76 例(36.19%)、糖尿病 98 例(46.67%)、高同型半胱氨酸血症 13 例(6.19%);DSA 检查发现有 126 例患者为单纯颅外段颈动脉狭窄,51 例患者为单纯椎动脉起始部狭窄,22 例患者为颅外段颈动脉合并椎动脉狭窄;术后的颈、椎动脉平均狭窄率为(4.15± 7.26)%,明显低于术前的(79.25± 6.34)% ($P < 0.05$);所有患者均未出现严重神经系统并发症和手术期死亡;术后随访 8~36 个月,均未出现与支架相关的短暂性脑缺血和新发脑梗死。**结论:**血管内介入治疗颈动脉、椎动脉狭窄安全有效,具有较高的临床应用价值。

关键词:血管内介入;颈动脉狭窄;椎动脉狭窄

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Efficacy and Safety of Intravascular Intervention in the Treatment of Carotid and Vertebral Artery Stenosis

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ABSTRACT Objective: To study the efficacy and safety of intravascular intervention in the treatment of carotid and vertebral artery stenosis. **Methods:** 210 cases with carotid artery stenosis and vertebral artery stenosis who were treated in our hospital from March 2011 to March 2015 were selected, the carotid and vertebral artery diameter stenosis rate $> 70\%$. All patients were treated with intravascular intervention. The clinical manifestations, DSA and vascular ultrasound examination results and perioperative complications were observed, and the patients were follow-up. **Results:** Through the neck vascular auscultation, there were 163 cases (77.62%) with vascular murmur, 103 cases (49.05%) with hypertension, 123 cases (58.57%) with hyperlipidemia, 76 cases (36.19%) with diabetes, 98 cases (46.67%) with smoking, 13 cases (6.19%) with homocysteine; DSA examination found 126 cases with extracranial carotid stenosis, 51 cases with the vertebral artery stenosis, 22 cases with carotid artery combined with extracranial vertebral artery stenosis; the average postoperative carotid and vertebral artery stenosis rate was (4.15± 7.26)% was lower than that before surgery (79.25± 6.34)% ($P < 0.05$); all patients had no severe neurological complications and surgical mortality; after followed up for 8~36 months postoperatively, all patients did not appear transient ischemic and new cerebral infarction associated with stent. **Conclusions:** Intravascular interventional treatment of the carotid artery and vertebral artery stenosis is safe and effective, and has high clinical value.

Key words: Intravascular intervention; Carotid artery stenosis; Vertebral artery stenosis

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前言

颈动脉、椎动脉粥样硬化可以引起血管动脉狭窄,是导致缺血性脑血管疾病发生的高危因素,其狭窄程度与中风的危险程度呈正相关^[1,2]。随着人们生活水平的提升及生活方式的转变,颈动脉、椎动脉狭窄现象日益加剧,缺血性脑血管疾病的发

病率也随之不断升高,对人们的生活质量和生命健康造成严重影响^[3,4]。随着介入器材工艺的提高及介入神经放射学的发展,血管内介入治疗颈动脉、椎动脉狭窄成为可供选择的治疗方法,能有效缩短手术时间,降低围手术期并发症的发生率^[5,6]。但临床上关于血管内介入治疗颈动脉、椎动脉狭窄的报道多是个案研究,病历资料的数量较少,缺乏大样本研究,本研究对病例数进行了扩充,选取了 210 例颈动脉和椎动脉狭窄患者,对血管内介入治疗的临床疗效和安全性进行了探讨。

1 资料和方法

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1.1 一般资料

选择 2011 年 3 月~2016 年 3 月我院诊治的颈动脉和椎动脉狭窄患者 210 例,所有患者均经头部 CT 或 MRI、颈部血管彩色超声检查确认出现颈动脉或椎动脉狭窄。其中男 168 例,女 42 例;年龄 53~81 岁,平均(63.21±7.85)岁;出现一过性偏身无力例(合并一过性言语障碍 21 例),一过性偏身麻木 46 例,反复头晕 70 例(合并头痛 31 例),一过性偏身麻木伴偏身无力 21 例。本研究获得我院伦理委员会的批准,所有患者均签署知情同意书。

纳入标准:颈、椎动脉直径狭窄率超过 70%,出现与狭窄有关的神经系统症状和脑实质性缺血;1 月内无严重的脑梗死发作;无心、肝、肾功能障碍;无颅内出血。排除标准:病变动脉发生完全闭塞;临床体征和血管狭窄区域无任何相关;合并动静脉畸形或颅内肿瘤;导管经过的动脉严重迂曲并硬化,导致导管难以通过动脉。

1.2 方法

患者均进行常规数字脑血管造影(DSA)检查,重点观察颈、椎动脉的狭窄程度和对幕上脑血流的影响程度。在介入术前 3 d,患者口服氯比格雷 75 mg/d 和阿司匹林 100 mg/d,在术前 6 h 禁食。在局麻下采用 Seldinger 技术行股动脉穿刺,放入 8F 动脉鞘,全身肝素化,并持续泵入尼莫地平 3 mL 以防止发生血管痉挛。把引导导管送至动脉狭窄部位附近,进行血管造影,检测动脉狭窄病变的血管直径和狭窄长度,选择与病变合适的支架。使指引导丝经过动脉狭窄处,将支架装置沿着指引导丝进行输送,使支架跨过动脉狭窄部位。当到达狭窄血管部位时,将

支架缓慢释放。术后监测患者生命体征,调控血压,皮下注射低分子肝素 0.6 mL,每 12 h 一次,继续口服氯比格雷 75 mg/d 和阿司匹林 100 mg/d。术后通过电话和门诊进行随访,影像学随访项目包括 CT、MRI、超声及 DSA 检查。

1.3 统计学分析

采用 SPSS15.0 软件进行统计学分析,两组间计量资料对比用 t 检验,计数资料用 χ^2 检验,以 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 临床表现

患者的临床表现主要为反复短暂性脑缺血发作 128 例,头晕和陈旧性脑梗死 82 例。经颈部血管听诊发现,有 163 例(77.62%)患者出现血管杂音,合并高血压 103 例(49.05%)、高脂血症 123 例(58.57%)、吸烟 76 例(36.19%)、糖尿病 98 例(46.67%)、高同型半胱氨酸血症 13 例(6.19%)。

2.2 DSA 和血管超声检查

DSA 检查发现有 126 例患者为单纯颅外段颈动脉狭窄,51 例患者为单纯椎动脉起始部狭窄,22 例患者为颅外段颈动脉合并椎动脉狭窄。常规颈部血管超声检查发现所有患者均存在异常,主要表现为动脉粥样硬化斑块形成和内膜增厚。210 例患者共置入 231 枚血管内支架,术中有 65 例患者使用了颈动脉保护伞,所有患者的手术均成功。术后的颈、椎动脉平均狭窄率为(4.15±7.26)%,明显低于术前的(79.25±6.34)% ($P<0.05$),见表 1,图 1。

表 1 术前和术后颈、椎动脉平均狭窄率比较($\bar{x}\pm s$)

Table 1 Comparison of the carotid and vertebral artery average stenosis rate preoperative and postoperative($\bar{x}\pm s$)

Time	n	Carotid and vertebral artery average stenosis rate(%)
Preoperative	210	79.25± 6.34
Postoperative	210	4.15± 7.26*

Note: compared with preoperative, * $P<0.05$.

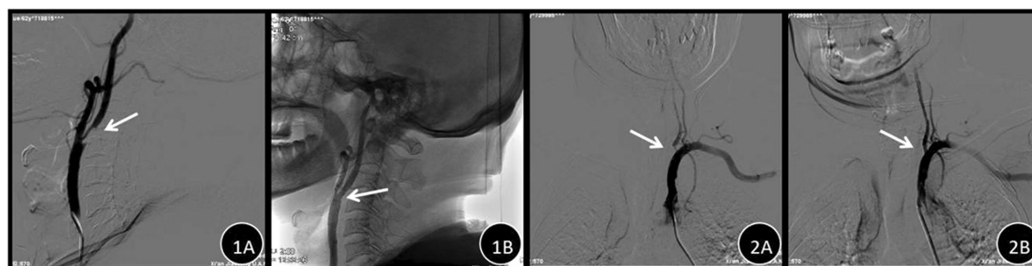


图 1 DSA 示颈动脉狭窄和椎动脉狭窄的典型病例

Fig.1 Typical cases with carotid and vertebral artery stenosis by DSA

Note: Fig.1A and 1B: Patient (male patient, 72 years old). DSA examination showed 80%stenosis on the left side of the internal carotid artery had about 80%stenosis (1A, indicated by the arrow), and angiography showed after stent implantation internal carotid artery, the stenosis was significantly improved (1B, indicated by the arrow); Fig.2A and 2B: Patient (male patient, 68 years old). DSA examination showed 85%stenosis on the left side of the vertebral artery had about 85%stenosis (2A, indicated by the arrow), and angiography showed after stent implantation on the left side of the vertebral artery, the stenosis was significantly improved (2B, indicated by the arrow).

2.3 围手术期并发症

所有患者均未出现严重神经系统并发症和手术期死亡。在

扩张颈动脉分叉处时,92 例(43.81%)出现血压下降,107 例(50.95%)出现心率减慢,16 例(7.62%)出现血管痉挛,给予注射

多巴胺和阿托品均明显好转;19例(9.05%)出现持续性低血压;23例(10.95%)出现刺点皮下水肿;65例脑保护伞均放入并回收成功。在保护伞内发现12例脱落的栓子,术中未出现脑栓塞事件。

2.4 随访

术后随访8~36个月,其中有15例失访。经超声检查发现,198例患者的支架内光滑未发生狭窄,12例发生再狭窄达42%,随访6个月发现支架内光滑,狭窄未超过50%。未出现与支架相关的短暂性脑缺血和新发脑梗死。无1例患者死亡。

3 讨论

颈动脉和椎动脉狭窄是造成缺血性卒中的主要病因,血管内支架置入通过改善脑部及全身的血流循环,从而避免动脉粥样硬化斑块的脱落和血栓的形成,最终达到治疗由脑组织缺血导致的脑卒中及缺血性脑梗死的目的,目前已成为治疗颈动脉、椎动脉狭窄的首选治疗方法^[7-9]。血管内支架置入技术无需进行全身麻醉,患者在手术过程中可以在临床状态下得到监护,减少局部损伤,缩短恢复时间,尤其适合高龄和心肺功能障碍患者,为颈、椎动脉狭窄的临床治疗开辟了新的途径,具有对脑血流阻断时间短,对颈部血管神经损伤小,并发症少,技术成功率高等优点^[10-12]。

但目前相关的研究多存在样本量小、随访时间短的问题,本研究进行了大样本研究,并进行了长期随访观察血管内介入治疗颈动脉、椎动脉狭窄的远期疗效,结果发现,有163例(77.62%)患者出现血管杂音,阳性率较高,可作为临床筛查颈动脉、椎动脉狭窄的重要体征。合并高血压103例(49.05%)、高脂血症123例(58.57%)、吸烟76例(36.19%)、糖尿病98例(46.67%)、高同型半胱氨酸血症13例(6.19%)。脑血管疾病的危险因素依次排序为高脂血症、高血压、糖尿病、饮酒、吸烟和高同型半胱氨酸血症,临床对上述危险因素应加强控制。常规颈部血管超声检查发现所有患者均存在异常,主要表现为动脉粥样硬化斑块形成和内膜增厚。提示颈部血管超声检查可作为临床筛查颈动脉和椎动脉狭窄的一个重要检查方法。因球囊或支架会刺激颈动脉窦,造成迷走神经兴奋,心率降低,可给予阿托品对抗,而对于持续性低血压,可给予多巴胺治疗,并根据血压变化情况调节滴速^[13-16]。术中导管导丝的操作可以引起血管痉挛,保护伞在使用时位置要相对固定,不能上下移动^[17]。本研究中虽有并发症发生,但经对症处理后均在短期内缓解或消失,表明血管内支架置入是治疗颈、椎动脉狭窄的有效手段。Kastrup等^[18]的研究结果显示,心动过缓发生率达27.5%,低血压发生率约22.4%。本研究在颈动脉分叉处扩张时,心率减慢发生率为50.95%,血压降低发生率为43.81%,较文献报道的结果高,这可能与本研究中球囊扩张比例较高有关,患者经注射阿托品及多巴胺后好转,未出现晕厥发作及低灌注性脑梗死。

远期疗效是支架植入术后人们关注的重要问题,限制血管内介入治疗的广泛开展应用的最主要原因为再狭窄和缺血性并发症的发生^[19]。术后随访8~36个月发现,198例患者的支架内光滑未发生狭窄,12例发生再狭窄达42%,随访6个月发现支架内光滑,狭窄未超过50%。发生血管再狭窄的机制目前尚未明确,可能与血管的重塑形、血管的弹性回缩和内膜过度

增生等因素相关。Lal等^[20]发现,血管内支架植入术后,支架会对血管中层形成刺激,使肌细胞发生迁移、增生,内膜增生是引起术后再狭窄的重要原因。因此在操作过程中一定要缓慢、准确、轻巧,降低对血管壁的刺激。另外,在术后应严格进行抗血小板和抗凝治疗,本研究中有3例发生再狭窄患者与术后没有坚持服用抗血小板药物有关。

综上所述,血管内介入治疗颈动脉、椎动脉狭窄手术成功率较高,并发症较少,安全有效,具有较高的临床应用价值。

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