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血管成形术介入治疗糖尿病下肢血管病变的临床效果分析

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摘要 目的:探讨经皮腔内血管成形术(PTA)联合支架植入术治疗糖尿病下肢血管病变的临床效果及安全性。**方法:**选择 2008 年 3 月至 2011 年 12 月在我院内分泌科接受治疗的 2 型糖尿病合并糖尿病足的患者 36 例,将其随机分为观察组(19 例)和对照组(17 例)。观察组 19 例患者中,14 例行 PTA 术,4 例行 PTA+ 腔内支架植入术,1 例行截肢术;对照组 17 例患者,全部采用传统方法进行治疗。观察和比较两组患者术后的糖尿病下肢血管病变的特点、临床效果及并发症的发生情况。**结果:**观察组 19 例患者,共 40 条靶血管,实施 PTA 手术的成功率为 87.5%。采用两种治疗方法 2 周或 4 周后,患者的临床症状和体征均得到一定程度的缓解,且均未观察到明显的不良反应。与对照组相比,接受介入治疗的患者,其临床症状的缓解率明显升高,其中在 2 周时介入治疗对麻木和紫绀症状的缓解尤其显著,和对照组之间有统计学差异(P<0.05)。**结论:**血管成形术介入治疗糖尿病下肢血管病变是一种安全可靠的方法,治疗效果好,安全性高,值得临床推广。

关键词: 糖尿病;下肢血管病变;经皮腔内血管成形术;支架植入术

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Clinical Efficacy of Angioplasty Intervention in the Treatment of Diabetic Lower Extremity Vascular Lesions

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ABSTRACT Objective: To investigate the efficacy of percutaneous transluminal angioplasty(PTA) combined with stent implantation in the treatment of vascular lesions of patients with diabetes. **Methods:** 36 cases who were diagnosed and treated in the department of endocrinology of our hospital from March 2008 to December 2011 were selected and randomly divided into the observation group(19 cases) and the control group (17 cases). In the observation group, 14 patients were treated by PTA, 4 patients were treated by PTA combined with stent implantation, and another one was treated by amputation. In the control group, all of the 17 patients were treated by the conventional method. The characteristics of vascular lesion of lower extremities, clinical efficacy and complications were observed and compared between two groups. **Results:** Nineteen patients (40 target vessel) accepted interventional therapy, the successful rate was 87.5%. The symptoms and physical signs were obviously relieved after the therapy of PTA or conventional method, and no obvious adverse reactions were observed. Compared with control group, the remission rates of symptoms and physical signs in observation group were higher than that in control group, and there were statistically significant difference in the relief of numbness and cyanosis(P<0.05). **Conclusion:** It is suggested that the PTA is a safe and reliable method to treat the vascular lesions of diabetics patients with the advantages of high successful rate, better efficacy and lower incidence of complications. It is worthy of being popularied in clinic.

Key words: Diabetes; Lower Extremity Vascular Lesions; PTA; Stent implantation

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糖尿病是一组由于胰岛素分泌缺陷和/或胰岛素作用障碍所致的以高血糖为特征的代谢性疾病[1]。随着患者病情的进展,各种并发症也相继发生,下肢血管病变导致的糖尿病足就是其中严重威胁中老年糖尿病患者的并发症之一[2,6]。病情发展到一定程度,患者的血管会出现不同程度的狭窄或闭塞,导致下肢及足部供血不足[3,4],易引起足部感染,形成溃疡,足部深层组织遭到破坏,严重的需要截肢,甚至危及生命[5]。目前,临床上多采用经皮血管成形术(PTA)联合支架植入术治疗糖尿病下肢血管病变,不但手术成功率高,而且并发症的发病几率低,提高了糖尿病患者的生活质量[8-10]。本研究,旨在探讨经皮腔内血管成形术(PTA)联合支架植入术治疗糖尿病下肢血管病变的临床效果,以期为后续研究提供可利用的资料,现报道如下。

1 资料与方法

1.1 临床资料

选取 2008 年 3 月至 2011 年 12 月在入住我院并接受治疗的 2 型糖尿病合并糖尿病足的患者 36 例, 将其随机分为观察组(介入治疗)和对照组(传统手术)。观察组 19 例患者,男性 13 例,女性 6 例,年龄 53-77 岁,平均年龄(64.8± 4.8)岁,病程 9-26

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年，平均(15.7± 8.5)年；对照组 17 例，其中男性 12 例，女性 5 例，年龄 51-76 岁，平均年龄(63.2± 5.4)岁，病程 8-27 年，平均(13.9± 8.3) 年。两组患者的一般临床资料比较均无显著差异(P>0.05)，具有可比性。

1.2 治疗方法

术前控制患者的血糖水平，改善微循环，口服抗血小板药物；借助彩色超声多普勒或下肢动脉 CTA、MRA 检查来确定患者动脉狭窄部位及程度。患者在局部或全身麻醉下行股动脉穿刺，穿刺成功后行全身肝素化。利用 DSA 对患者施分段患肢远端血管造影。在透视下采用不同直径球囊扩张病变处，用 6-8 球囊扩张股浅动脉，用直径小于 4 mm 的 Deep 球囊扩张腘动脉及腘以下动脉，每次扩张约 3 分钟，连扩 2-3 次。如果效果不理想，可根据病人情况和病变情况置入自膨式支架。

1.3 术后观察

术后患者需卧床约 12 小时，皮下注射低分子肝素一周。观察患者的凝血功能，如皮下瘀点、瘀斑、出血点、黑便等。患者的 APTT 小于或等于正常值的 2.5 倍可视为安全。患者出院后，每日口服波立维 75 mg，连续服用 4 至 6 个月；坚持每日服用阿司匹林 100 mg。定期检测凝血功能，根据凝血功能的改善情况调整用药剂量。

1.4 疗效评定标准

① 血管造影表现；② 手术成功标准：至少 1 支闭塞血管获得开通，术后血管狭窄＜30%，有直达足部的血流；③ 根据 Wagner 分级评定疗效：病变无明显改善或恶化为无效，下降 1 级为有效，下降 2 级为显效；④ 并发症情况。

1.5 统计学分析

应用 SPSS 13.0 统计软件进行分析，计量资料数据用($\bar{x}$± s)表示，组间比较采用 t 检验，计数资料的比较采用卡方检验，以 P<0.05 为差异有统计学意义。

2 结果

2.1 血管造影的表现

观察组 19 例患者，共治疗 22 条患肢。DSA 显示患者下肢均发生血管病变；受累血管病变特点：多呈弥漫性、多节段，严重的血管完全闭塞。22 条患肢中膝下多支动脉病变的有 19 条，占 86.4%。见表 1。

表 1 观察组患者治疗前 DSA 造影的情况

Table 1 Digital Subtraction Angiography of patients in the observation group before treatment

动脉名称 Artery	例数 Cases	狭窄节段 Narrow segment	狭窄程度分级 Classification of narrow
股动脉 Arteria femoralis	1	1	1
腘动脉 Arteria poplitea	2	2	1-2
颈动脉 Carotid artery	2	2	1-2
混合动脉 Mixed artery	17	2-6	1-3

注：狭窄程度＜50%为 0 分；狭窄程度在 50-75%为 1 分；狭窄程度 75-100%为 2 分；管腔完全闭塞者为 3 分。

Note: Degree was less than 50% marked 0 score; 50-75% marked 1 score; 75-100% marked 2 scores; totally blocking marked 3 scores.

2.2 介入治疗情况

在接受介入治疗的 22 条患肢中，适合 PTA 治疗指征的病变血管共有 40 条，其中狭窄性病变 37 处，闭塞性病变 25 处，靶病变 62 处。行 PTA+ 支架植入术的 4 例，行单纯 PTA 术的 14 例，初次治疗即取得成功的病变血管 35 条，手术成功率达 87.5%。另有 1 例行截肢术。

2.3 两组患者治疗前后相关指标的比较

治疗前：两组患者在血糖、麻木症状、疼痛、紫绀、皮肤低温相关指标中无统计学差异。治疗后症状的改善，即好转率：① 血糖：两组患者在 2 周和 4 周时血糖水平均有明显下降，两组间差异无统计学意义(P>0.05)；② 麻木症状：逐渐消失或好转，2 周（观察组 60.0%，对照组 14.3%，P=0.021），4 周（观察组

表 2 两组患者治疗前后的临床症状比较

Table 2 Comparison of clinical symptoms between two groups before and after treatment

Treatment time		Initial week(0)		Two weeks(2)		Four weeks(4)	
Groups		Observation G	Control G	Observation G	Control G	Observation G	Control G
Blood glucose(mmol/l)		11.8± 3.8	11.2± 3.3	8.1 ± 2.7	8.5± 2.4	7.3 ± 2.1	7.0± 2.0
Numbness(n)		15	14	6	12	1	5
Pain(n)		17	15	8	11	1	4
Cyanosis(n)		18	16	2	11	1	2
Skin temperature(n)		9	12	2	7	1	5
Wagner levels	Ⅰ	6	4	2	4	0	3
	Ⅱ	5	6	2	5	0	4
	Ⅲ	3	2	1	2	0	1
	Ⅳ	2	2	0	0	0	0

93.3%,对照组 64.3%,P=0.08);③疼痛:减轻或消失,2 周(观察组 52.9%,对照组 26.7%,P=0.166),4 周(观察组 94.1%,对照组 73.3%,P=0.161);④ 紫绀:消失,2 周(观察组 88.9%,对照组 31.3%,P=0.001),4 周(观察组 94.4%,对照组 87.5%,P=0.591);⑤皮肤低温:改善,2 周(观察组 77.8%,对照组 41.7%,P=0.184),4 周(观察组 88.9%,对照组 58.3%,P=0.178)。

2.4 两组并发症的发生情况比较

所有患者术后无局部出血、无穿刺部位血肿、无血管破裂、无远端血管血栓形成等相关并发症,也没有发生内支架移位。

3 讨论

糖尿病足是糖尿病的慢性并发症之一,多发生在中老年患者中[7]。有研究显示,糖尿病患者中有 15%以上的患者会随病情的发展而发生糖尿病足[14,15]。糖尿病患者下肢血管病变导致糖尿病足的主要原因在于:(1)糖尿病外周血管病变:糖尿病病人外周血管病变发病早病情重,会随患病时间的延长而加重;(2)神经病变;(3)血液流变学异常:如纤维蛋白原及全血粘度异常、血小板粘附率、红细胞变形指数;(4)感染:在神经病变和血管病变的基础上发生,即使是微小的创伤也会难以得到控制。

糖尿病下肢血管病变发生的范围广,呈阶段性分布,累及双侧多动脉,常规手术很难处理大范围的血管病变,而介入治疗则可以解决这个问题以保持患者病变血管的通畅性[11]。介入治疗主要包括经皮血管腔内溶栓术、经皮腔内血管成形术、血管腔内支架植入术、激光血管成形术、粥样斑块切割术、下肢近距离放疗、经皮机械性血栓切除术等[12,18]。本研究中,观察组 19 例患者经下肢血管造影检查后发现,患者发生血管病变的范围广,分布不规则,累及多处动脉,常规手术无法解决这一问题,只有通过介入手术进行治疗。

临床应用最普遍的两种治疗手段[16]。与传统手术相比,经皮腔内血管成形术的优点在于其操作方法较简便,手术创伤小,对患者造成的疼痛感较轻,术后恢复快,疗效显著,发生并发症的几率较小,特别适合对体质较弱,年龄较高的糖尿病患者[20]。该方法可在门诊直接施行,第一时间为患者进行治疗,可争取获得更好的效果,并且节省了住院所需的费用,减轻了患者的经济负担,有利于患者积极配合治疗[17]。在本研究中,接受介入或常规治疗后 2 周或 4 周,患者的临床症状、体征均有一定程度的改善。接受介入治疗的患者,其临床症状的缓解率明显高于常规治疗组,其中在 2 周时两种治疗方法对麻木和紫绀症状的缓解有统计学差异,提示在短期内对适合传统手术的患者进行介入治疗可以取得良好的效果。

目前,支架植入及下肢动脉球囊扩张作为血管病变的微创治疗方式[20],具有疗效显著,操作简单,术后并发症少等特点,是治疗糖尿病下肢血管病变的有效手段。本研究结果表明,血管成形术介入治疗糖尿病下肢血管病变的成功率高,治疗效果好,发生并发症的几率低,值得临床推广。

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