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经桡动脉脑血管造影及术后血管封堵术对患者疗效及安全性观察 *

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摘要 目的:探讨经桡动脉脑血管造影(transradial angiography, TRA)及术后血管封堵术对患者疗效及安全性。**方法:**选取我院2019年1月-2019年10月收治的193例行脑血管造影及术后血管封堵术的患者作为研究对象,将其随机分为TRA组(n=97例)和经股动脉途径(Transfemoral approach, TFA)组(n=96例)。观察两组穿刺成功率、术后3d主要终点事件发生率、穿刺时间、术后住院时间、手术时间、受线时间、材料费、穿刺点局部并发症等。**结果:**TRA组穿刺成功率为98.97%,TFA组穿刺成功率为97.91%,两组对比无统计学意义($P>0.05$);TRA组的穿刺时间长于TFA组,术后住院时间少于TFA组,差异有统计学意义($P<0.05$);TRA组的受线时间、手术时间及材料费显著低于TFA组,有统计学意义($P<0.05$);两组术后3d主要终点事件发生率比较无统计学意义($P>0.05$);TRA组穿刺点血肿及穿刺点并发症发生率较TFA组明显降低,差异有统计学意义($P<0.05$),且无其他并发症情况发生。**结论:**经桡动脉脑血管造影(TRA)及术后血管封堵术具有局部穿刺点并发症发生率低、术后住院时间短、费用低、可以提高患者的舒适度等特点,更为安全有效,具有一定的临床优势。

关键词:脑血管造影;桡动脉;有效性;安全性;股动脉

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Efficacy and Safety of Transradial Angiography and Occlusion*

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ABSTRACT Objective: To explore the efficacy and safety of transradial angiography (TRA) and postoperative vascular occlusion for patients. **Methods:** 193 patients who underwent cerebral angiography and postoperative vascular occlusion in our hospital from January 2019 to October 2019 were selected as the research object, and they were randomly divided into TRA group (n=97 cases) and transfemoral approach (TFA) group (n=96 cases). Observe the success rate of puncture, the incidence of the main end point event at 3 d post-operatively, puncture time, postoperative hospital stay, operative time, receiving time, material cost, local complications of puncture site, etc. **Results:** The puncture success rate in the TRA group was 98.97 %, and the puncture success rate in the TFA group was 97.91 %, which was not statistically significant ($P>0.05$). The receiving time, operation time and material cost of the TRA group were significantly lower than that of the TFA group, which was statistically significant ($P<0.05$). The comparison of the incidence of the main endpoint events at 3 days after the two groups, no statistical significance ($P>0.05$). The incidence of puncture point hematoma and puncture point complications in the TRA group was significantly lower than that in the TFA group, the difference was statistically significant ($P<0.05$), and no other complications occurred. **Conclusion:** Transradial cerebral angiography (TRA) and postoperative vascular occlusion had the characteristics of low incidence of local puncture point complications, short postoperative hospital stay, low cost, and could improve patient comfort, more safe and effective, had certain clinical advantages.

Key words: Cerebral angiography; Radial artery; Effectiveness; Safety; Femoral artery

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前言

目前,脑血管疾病在临床上与其他类疾病比较发病率相对较高,给人们的身心健康都带来了极大的影响^[1,2]。脑血管造影在临床上已成为重要的检查手段,以往常用的途径是股动脉(TFA)穿刺,但是这种途径会有一定的局限性,患者术后必须卧床,舒适度较差,很多患者会出现腰痛、下肢静脉血栓、假性

动脉瘤等并发症^[3,4]。随着我国医疗技术水平的发展,近些年,TRA途径被广泛应用于临床并且取得了较好的效果,该途径安全性高、并发症少,手术后患者不用卧床休息,被广大患者接受和认可^[5,6]。本研究选取我院2019年1月-2019年10月收治的193例行脑血管造影的患者作为研究对象,进行分组对照,探讨经桡动脉脑血管造影(TRA)及术后血管封堵术对患者疗效及安全性。现将研究结果报告如下。

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1 资料与方法

1.1 一般资料

选取我院 2019 年 1 月~2019 年 10 月收治的 193 例行脑血管造影及术后血管封堵术的患者作为研究对象。纳入标准:(1)符合脑血管造影适应症并且没有禁忌证^[7];(2)了解两种造

影途径的利弊,同意并签署了知情同意书;(3)穿刺部位没有感染及皮肤破溃现象。排除标准:(1)桡动脉末梢有阻塞性病变^[8];(2)桡动脉曾经做过搭桥或透析;(3)身体综合素质较差,不能耐受脑血管造影;(4)神经功能受过严重缺损,无法配合检查;(5)心、肝、肾功能严重不全者。两组在年龄、性别、合并症等方面差异无统计学意义($P>0.05$),见表 1。

表 1 两组患者一般资料对比

Table 1 Comparison of general information between the two groups

Groups	Gender(Male / female)	Age (years)	Comorbidity			
			Hypertension	Cerebral infarction	Hyperlipidemia	Diabetes
TRA group(n=97)	55/42	62.5± 16.7	62(63.9)	70(72.2)	53(54.6)	46(47.4)
TFA group(n=96)	53/43	59.7± 14.2	61(63.5)	71(74.0)	53(55.2)	45(46.9)

1.2 操作方法

手术前给两组患者分别进行 Alien 试验检查。

TRA 组:给予患者常规消毒,取平卧位,桡骨茎突上 2~3 cm 处是人体动脉搏动最明显的位置,将其作为穿刺点。用 1~2 mL 的 1%利多卡因将穿刺点进行局部麻醉,采用外套管针法行桡动脉穿刺,成功穿刺后,将 0.025 英寸的软头直导丝沿穿刺针送入桡动脉。将穿刺针拔出后,再用 1%利多卡因将穿刺点附近补充麻醉,等再次麻醉后,取长约 2 mm 的皮肤切口,将 5 F 桡动脉鞘从切口插入。待穿刺完成后,静脉注射肝素 3000 U,使全身肝素化。造影导管采用 4FSimmonsII 型,在 0.035 英寸的软头导丝的引导下,为患者进行全脑血管造影。造影完毕,拔除桡动脉鞘,局部加压,无渗血后用弹力绷带包扎,术后 6 h 给予松压缓解,8 h 后可以解除绷带,下床活动。

TFA 组:右侧股动脉消毒,腹股沟下约 1.5~2.0 cm 处是股动脉搏动最明显的位置^[8],将其选作穿刺点,用 5 mL 的 1%利多卡因进行局部麻醉,采用股动脉穿刺针进行穿刺,穿刺完成后,导入 "J" 形短导丝,将 5 F 股动脉鞘管沿着导丝引入,将短导丝拔出,静脉给予肝素 2500 U。采用猪尾巴管进行主动脉造影、猎人头导管行椎动脉造影。待造影成功后,立即拔除股动脉鞘管,手动压迫 10~20 min 止血,无渗血后加压包扎,加压 6 h。

右下肢制动,术后 24 h 后方可解除绷带,期间限制下床活动。

1.3 观察指标

观察两组术后 3 d 主要终点事件发生率、穿刺成功率、穿刺时间、术后住院时间、手术时间、受线时间、材料费、穿刺点有无皮下淤血、穿刺点血肿等局部并发症等。

1.4 统计学方法

应用 SPSS 22.0 统计软件进行,计量资料以均值±标准差($\bar{x} \pm s$)表示,组间比较采用独立样本 t 检验;计数资料用百分比(%)表示,采用卡方检验(χ^2)。 $P<0.05$ 时,表示差异具有统计学意义。

2 结果

2.1 两组的有效性安全性比较

TRA 组有 1 例穿刺失败,因该患者股动脉血管迂曲严重,导致手术过程中发生血管痉挛,最后给予股动脉穿刺造影;TFA 组有 2 例造影失败,1 例因患者股动脉夹层,另外 1 例是由于髂动脉闭塞。TRA 组穿刺成功率为 98.97%,TFA 穿刺组成功率为 97.91%,对比无统计学意义($P>0.05$)。TRA 组的穿刺时间长于 TFA 组、术后住院时间少于 TFA 组,差异有统计学意义($P<0.05$),见表 2。

表 2 两组的有效性安全性比较

Table 2 Comparison of effectiveness and safety of the two groups

Index	TRA group(n=97)	TFA group(n=96)
Puncture success rate	96(98.97)	94(97.91)
Puncture time(min)	4.81± 2.52*	3.51± 3.23
Hospitalization time(d)	2.2± 1.4*	4.0± 2.1

Note: Compared with the TFA group, * $P<0.05$.

2.2 两组的受线时间、手术时间及材料费比较

TRA 组的受线时间、手术时间显著短于 TFA 组,材料费显著少于 TFA 组,有统计学意义($P<0.05$),见表 3。

2.3 两组患者并发症情况比较

两组术后 3 d 主要终点事件发生率比较无统计学意义($P>0.05$);TRA 组穿刺点血肿及穿刺点并发症发生率显著低于 TFA 组($P<0.05$);无其他并发症情况发生,见表 4。

3 讨论

目前,脑血管造影术是临床上诊断颅内血管病变非常重要的手段^[9]。早些年,经股动脉穿刺的途径被广泛应用于全脑血管造影术,其适用范围比较广,经验技术比较成熟^[10,11]。但是,又存在一定的缺点和不足。经股动脉穿刺完成后,需要手动给予按压 10~20 min 止血,加压 6 h,然后解压给予绷带包扎,24 h 后才能解除绷带^[12],如此长时间的施压导致部分患者腹股沟区会出现大面积血肿、皮下淤血等现象,还有的患者会出现假性动脉瘤、动静脉瘘等严重问题^[13,14]。同时,术后患者还需要卧床并进行制动,患者会有很大的不适感,特别是一些年纪偏大的患

表 3 两组的受线时间、手术时间及材料费比较

Table 3 Comparison of receiving time, operation time and material cost of the two groups

Groups	n	Receiving time(min)	Operation time(min)	Material fee (yuan)
TRA group	96	13.25± 10.29*	55.34± 17.23*	1803.36± 218.76*
TFA group	94	19.79± 10.74	65.29± 10.37	1988.34± 325.27

Note: Compared with the TFA group, * $P < 0.05$.

表 4 两组患者并发症情况比较 (例, %)

Table 4 Comparison of complications between the two groups (n, %)

Index	TRA group(n=96)	TFA group(n=94)
3 d postoperative primary endpoint event	1(1.04)	3(3.19)
Acute cerebral infarction	0(0)	1(1.06)
Transient ischemic attack	1(1.04)	2(2.13)
Incidence of puncture point complications	2(2.08)*	21(22.34)
Puncture point hematoma	2(2.08)*	16(17.02)
Arteriovenous fistula	0(0)	2(2.13)
Arterial dissection	0(0)	3(3.19)

Note: Compared with the TFA group, * $P < 0.05$.

者因其循环系统退化,卧床会导致排尿障碍,引起下肢静脉血栓^[15,16]。另外,如果患者腹股沟区皮肤有感染、溃面或是有髂股闭塞疾病,抑或本身肥胖的患者都无法给予经股动脉造影^[17-19]。近年来,随着医学的不断进步,经桡动脉穿刺的途径发展迅速,成为一种新途径被大家认可。大量研究证明,经桡动脉穿刺途径具有穿刺点创口小、穿刺时出血量少、术后住院时间短、无需卧床、穿刺点局部并发症少、患者舒适度高等优点^[20-22]。术后,拔除桡动脉鞘,局部短暂时间加压至无渗血后,用弹力绷带包扎,8 h后就可以解除绷带^[23]。患者经桡动脉穿刺的上肢不需要固定,也不需要制动,这样大大的减轻了患者的痛苦,更容易被患者接受^[24]。但是,经桡动脉穿刺途径还没有普遍应用于临床,因此,还是缺少一些临床经验,相比经股动脉穿刺的途径来讲技术熟练度还不够,在手术过程中,应用的手术时间可能会比经股动脉穿刺途径长一些^[25,26]。但其实,两种方式只是穿刺路径不同,都有各自的优缺点,临床上可依据患者的实际情况给予选择^[27]。有研究表明,临床上两种途径行脑血管造影失败时,或是不适应症时,均可以采取互换途径来尝试操作,起到相对互补的作用^[28]。

本研究结果表明,TRA组穿刺成功率为98.97%,TFA穿刺组成功率为97.91%,TRA组与TFA组相比较,穿刺成功率与术后3 d主要终点事件发生率没有明显的差异。与夏金超^[29]等学者的研究类似,发现TRA对全脑血管造影的2314例患者的临床资料,其中经桡动脉穿刺1085例,经股动脉穿刺1229例。结果显示,与经股动脉入路相比,经桡动脉穿刺脑血管造影术患者的术后住院时间更短、总体并发症更少,为脑血管造影检查可选择的血管途径之一,与本研究不同的是对比了不同位置的穿刺。研究经桡动脉途径与经股动脉途径全脑血管造影的研究结果显示,穿刺成功率为99.56%,和本研究的结果有很高的相似性,由此可见经股动脉穿刺途径与经桡动脉入穿刺途径应用与脑血管造影术都是安全有效的,并且临床上没有绝对的适应症;TRA组的穿刺时间明显长于TFA组、术后住院时间明显少于TFA组。Mizin AG^[30]等学者的研究与本研究类似,在

经桡动脉途径在全脑血管造影的研究结果发现TRA组的穿刺时间略长可能与桡动脉血管较细有关,或是医生的技术经验不足有关,还需增加临床经验。但是,术后患者的住院时间明显缩短,无需卧床,这给患者带来很大的舒适度。经过术后观察,TRA组穿刺点血肿及穿刺点并发症发生率明显低于TFA组。与Brian M Snelling^[31]的结果类似,分析了TRA与TFA相比对神经干预的安全性,发现与TFA相比,TRA对于大多数神经介入手术而言是安全可行的,并且降低了主要进入部位并发症的风险。TRA的局限性可以通过操作员的经验和精巧的技术来消除,因此,TRA在神经干预中起着一定的作用,特别是在TFA进入部位并发症风险增加的患者中。分析其原因因为经TFA穿刺成功后,拔除股动脉鞘管,穿刺点需给予手动按压,时间较长,这样就容易引起穿刺点血肿或是皮下假性动脉瘤的并发症的发生。而TRA组在术后可立即拔掉桡动脉鞘管,穿刺点局部按压到无渗血点即可,患者可随时下床活动和正常生活,大大的降低了穿刺点血肿、皮下淤血等并发症的发生几率,所以,对于经股动脉入路途径难度大的患者,经桡动脉行脑血管造影是一种更理想的选择^[32]。TRA组的受线时间、手术时间及材料费与TFA组比较都有其优势,可见其有很好的临床应用意义。本研究也存在一定的不足,没有分析影响TRA与TFA治疗的影响因素与手术的注意事项,也没有进行远期的疗效和不良反应分析,后续将会继续探究TRA与TFA治疗优缺点和适宜人群,为脑血管疾病的治疗提供更多的参考。

综上所述,经桡动脉脑血管造影及术后血管封堵术对患者更安全有效,并且穿刺点局部并发症发生率低,术后住院时间短,大大增加了患者的舒适度,而且费用低,可被作为脑血管造影检查的一项有效的途径,值得在临床上广泛应用和推广。

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