

·临床研究 Clinical research·

盐酸法舒地尔在妇科介入治疗中的应用

万 军, 张 磊, 顾伟瑾, 纪莉华, 王海云

【摘要】 目的 探讨经子宫动脉介入诊治过程中子宫动脉痉挛的发生率, 评估盐酸法舒地尔对解除子宫动脉痉挛的有效性和安全性。**方法** 2007 年 07 月至 2011 年 11 月 87 例接受经子宫动脉造影和介入治疗患者, 在子宫动脉插管造影、灌注化疗及血管栓塞过程中发生子宫动脉痉挛, 并根据子宫动脉痉挛程度分为轻度、中度、重度、顽固性 4 类。对于中、重度、顽固性子宫动脉痉挛者给予导管内缓慢推注盐酸法舒地尔 5 mg, 观察子宫动脉痉挛解除时间, 记录推注前后血压、心率变化情况, 同时观察患者有无头晕、头痛、视物模糊、消化系统及过敏等不良反应。**结果** 87 例中有 65 例(75%)发生不同程度子宫动脉痉挛, 其中轻度 5 例、中度 16 例、重度 41 例、顽固性 3 例。给中度以上子宫动脉痉挛者推注 5 mg 盐酸法舒地尔后, 5 min 内均能迅速解除痉挛, 成功实施介入诊治。推注盐酸法舒地尔前后血压、心率差异均无统计学意义($P > 0.05$), 1 例患者发生低血压、颜面潮红、心慌。**结论** 盐酸法舒地尔可安全、有效、迅速缓解子宫动脉痉挛。

【关键词】 妇科疾病; 子宫动脉; 痉挛; 盐酸法舒地尔; 介入

中图分类号: R714 文献标志码: B 文章编号: 1008-794X(2012)-06-0498-04

The application of fasudil hydrochloride in gynecological interventional treatment WAN Jun, ZHANG Lei, GU Wei-jin, JI Li-hua, WANG Hai-yun. Department of Interventional Radiology, Central Hospital of Jing'an District, Shanghai 200040, China

Corresponding author: GU Wei-jin, E-mail: guweijin0704@163.com

【Abstract】 Objective To investigate the incidence of uterine artery spasm occurred during uterine arterial interventional diagnosis and treatment, and to evaluate the safety and effectiveness of fasudil hydrochloride in relieving the uterine artery spasm. **Methods** During the period from July 2007 to Nov. 2011, a total of 87 patients received uterine artery angiography and interventional treatment. During the performance of angiography, catheterization, infusion chemotherapy and arterial embolization uterine artery spasm occurred in 65 patients. According to the severity of uterine artery spasm, the patients were divided into four categories: mild, moderate, severe and intractable. For patients with moderate, severe or intractable uterine artery spasm, slow injection of hydrochloric acid fasudil 5 mg through the catheter was carried out. The spasm-relieving time, the changes of blood pressure and heart rate were recorded, and the patients were kept under observation for the occurrence of adverse effects such as dizziness, headache, blurred vision, digestive and allergic reactions, etc. **Results** Of the 87 patients, uterine artery spasm occurred in 65 (75%), including mild ($n = 5$), moderate ($n = 16$), severe ($n = 41$) and intractable spasm ($n = 3$). After the injection of hydrochloric acid fasudil 5mg the uterine artery spasm was relieved within five minutes. The therapeutic interventional procedure was thus able to be accomplished. After the injection of hydrochloric acid fasudil both the blood pressure and heart rate showed no significant changes when compared with those determined before the injection ($P > 0.05$). One patient experienced transient hypotension, facial flushing and palpitation. **Conclusion** The use of hydrochloric acid fasudil can safely, effectively and quickly relieve the uterine artery spasm occurred during the performance of gynecological interventional management. (J

DOI: 10.3969/j.issn.1008-794X.2012.06.013

Intervent Radiol, 2012, 21: 498-501)

作者单位: 200040 上海市静安区中心医院/复旦大学附属华山医院静安分院(万 军、张 磊、顾伟瑾、纪莉华);上海市第一妇婴保健院(王海云)

通信作者: 顾伟瑾 E-mail: guweijin0704@163.com

【Key words】 gynecopathy; uterine artery; spasm; fasudil hydrochloride; intervention

子宫动脉痉挛是经子宫动脉介入诊治中最为常见的并发症,尤其是妇科出血患者,其发生率为 75%左右。对妇科大出血患者,行双侧子宫动脉快速栓塞是一种安全有效的急救措施^[1]。由于子宫动脉痉挛多可自行缓解或在导管内推注 2%利多卡因、硝酸甘油等药物后好转,因此较少引起严重后果,但等待时间较长,痉挛期间如再行化疗灌注或物理刺激,可能进一步导致动脉血管损伤,不利于介入治疗的进行。少数情况下可发生顽固性子宫动脉痉挛,导致手术失败、导管无法推送或撤除,引起患者疼痛和紧张等,对少数大出血患者来说可能会危及生命。本文对我院近年来经子宫动脉介入诊治过程中子宫动脉痉挛发生率以及解除方法进行回顾性分析,并探讨盐酸法舒地尔对解除子宫动脉痉挛的有效性和安全性。

1 对象与方法

1.1 研究病例

2007 年 07 月 - 2011 年 11 月,我院接受经子宫动脉介入诊治病例 87 例,年龄 24 ~ 43 岁,平均 (31 ± 8) 岁。其中子宫瘢痕妊娠出血 66 例,占 76%。

1.2 介入方法

以改良 Seldinger 法行股动脉穿刺,选用 5 F 动脉穿刺套件(泰尔茂公司),成功置入鞘管后常规选用 5 F 猪尾巴导管(Cordis 公司),选择性插入至 L2-3 间隙处,以 12 ml/s、15 ml 行造影,了解双侧髂总动脉及其分支情况,初步判断双侧子宫动脉走行及优势子宫供血动脉,随后换 4 F Corbra II(Cordis 公司)共用型造影导管行双侧髂内动脉、子宫动脉造影,子宫动脉插管困难者,加用 Progreate 微导管(泰尔茂公司)。在导管操作过程中,导管在超滑亲水导丝引导下,路图指示下先行超选择性插入对侧髂内动脉及子宫动脉,完成对侧治疗后,导管在导丝保护下成襻后超选择性插入同侧髂内动脉及子宫动脉,髂内动脉以 3 ml/s、8 ml 行造影术,子宫动脉内以 1 ml/s、3 ml 行造影术,压力值设定为 1 200 psi,根据造影减影图像判断有无血管痉挛。

1.3 子宫动脉痉挛分级

对出现子宫动脉痉挛者根据临床情况分为:①轻度,子宫动脉轻微变细,血管影像变细约 20%,但不影响导管操作,能够顺利完成手术者。②中度,子宫动脉中度变细,血管影像变细约 50%。③重度,子宫动脉严重变细,血管影像变细约 80%,导管操作可见局段血管移位、对比剂局部滞留,且导管不能

拔除。④顽固性,导管无法拔除,透视下可见血管牵拉。

1.4 用药方法

对于中度以上子宫动脉痉挛者给予导管内缓慢推注盐酸法舒地尔 5 mg(天津红日药业有限公司,用 30 mg 稀释至 15 ml,经导管动脉内推注 2.5 ml),观察子宫动脉痉挛解除时间,记录推注药物前、推注药物后 3、5 和 10 min 时的血压、心率变化情况,同时观察患者有无头晕、头痛、视物模糊、腹胀、恶心、呕吐、心慌、颜面潮红、皮疹、发热、头痛、意识水平低、呼吸抑制等过敏症状。

1.5 统计学处理

数据采用 SPSS13 统计软件包处理,计量资料以($\bar{x} \pm s$)表示,采用配对 *t* 检验。 $P < 0.05$ 为差异有统计学意义。

2 结果

本组有 75%(65/87 例)患者发生子宫动脉痉挛,其中轻度 5 例、中度 16 例、重度 41 例、顽固性 3 例。子宫动脉痉挛者在推注 5 mg 法舒地尔后 5 min 内痉挛均迅速解除,成功实施介入治疗并最终拔除导管(图 1)。所有患者在导管内推注盐酸法舒地尔前后各时段血压、心率差异均无统计学意义($P > 0.05$),见表 1。1 例患者出现轻度恶心、呕吐感,面色潮红,其他患者未见明显头晕、头痛、视物模糊、腹胀、恶心、呕吐、心慌、颜面潮红、皮疹、发热、头痛、意识水平低、呼吸抑制等过敏症状。

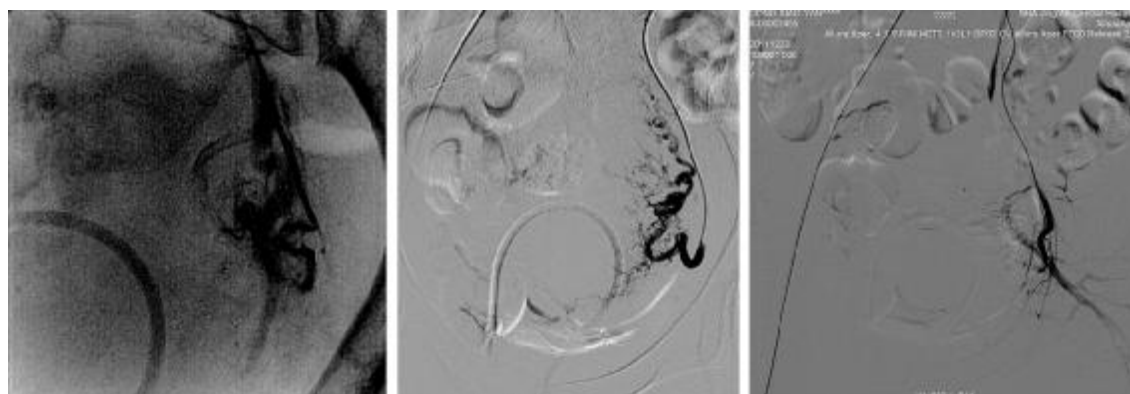
表 1 推注盐酸法舒地尔前后患者血压、心率变化
($n = 65$)

参数	用药前	用药后(min)		
		5	10	15
心率(次/min)	72.0 ± 6.7	77.0 ± 4.5	78.0 ± 5.2	72.0 ± 2.5
收缩压(mmHg)	120.0 ± 10.1	113.0 ± 12.2	121.0 ± 9.6	124.0 ± 10.6
舒张压(mmHg)	78.0 ± 6.7	73.0 ± 6.9	76.0 ± 6.5	75.0 ± 6.6

注: 1 mmHg = 0.133 kPa

3 讨论

子宫动脉管壁主要成分为平滑肌,管壁收缩力强,故又称肌性动脉,且血管壁肾上腺素能受体以 α_1 受体为主,对循环中儿茶酚胺极为敏感,加之子宫动脉口径细小、扭曲、器械激惹等因素,子宫动脉痉挛在经子宫动脉介入诊治中较为常见,约 75%,且一旦发生,常在中度以上。本组中 76%为子宫瘢痕妊娠后出血患者,在介入治疗术前多给予静脉点滴脑垂体后叶素、缩宫素等,从而使其在介入治疗



1a 子宫动脉严重痉挛

1b 注射盐酸法舒地尔后 3 min

1c 子宫动脉栓塞后

图 1 子宫动脉痉挛者成功实施介入治疗

过程中更容易发生血管痉挛,尤其是大出血患者。

本组研究结果显示,75%(65/87)的患者需要抗血管痉挛干预,3例(3.4%)患者发生顽固性子宫动脉痉挛,造影显示,血管壁“束缚”造影导管,对比剂滞留。经导管内缓慢推注盐酸法舒地尔后,均能有效解除血管痉挛。

本组中 1 例出现轻度恶心、呕吐感,面色潮红。该病例为瘢痕妊娠伴有出血,当时出血量约为 800 ml,急诊行介入治疗。动脉推注药物时患者出现恶心、呕吐感及面色潮红等不适症状,考虑该患者由于大量失血,机体处于应激状态,系对药物反应更加敏感所致。此类患者在药物注射时需要密切观察,仔细询问其感受;同时,建议药物注射时更为缓慢,减少药物剂量或药物再稀释,以降低注射药物浓度,使手术更安全。

Rho 激酶抑制剂盐酸法舒地尔是新型异喹啉磺胺衍生物。在平滑肌收缩过程中,肌球蛋白轻链(MLC)的磷酸化水平与平滑肌收缩程度密切相关,MLC 的磷酸化水平受到依赖 Ca^{2+} / 钙调蛋白(CaM)的肌球蛋白轻链激酶(MLCK)和 Ca^{2+} 非依赖的肌球蛋白轻链磷酸酶(MLCP)的双重调节。MLCK 磷酸化 MLC 的 Ser19 位点,活化肌动蛋白-肌球蛋白系统,引起平滑肌收缩;MLCP 的抑制能使 MLC 磷酸化及平滑肌收缩作用进一步加强。法舒地尔作为一种新型钙离子拮抗剂,它具有强烈的扩血管作用^[2-5],是 Rho 激酶的抑制剂,通过阻断 Rho 激酶对钙离子非依赖的 MLCP 的抑制作用,抑制钙敏化效应,介导血管平滑肌舒张,并通过拮抗多种物质诱导的血管收缩,有效扩张血管^[6]。近年来,该药在解除脑血管痉挛及肝癌血管介入治疗时的血管痉挛中的应用取得了良好效果^[7-8],在心脏病学领

域,也初步显现其于心绞痛、高血压、肺动脉高压、心力衰竭以及搭桥术后冠状动脉桥痉挛中^[9-13]的应用价值。

综上所述,我们尝试使用导管内缓慢推注盐酸法舒地尔处理子宫动脉痉挛获得良好效果,未发现严重不良反应,安全、迅速、有效,值得在妇科血管介入领域推广应用。

[参考文献]

- [1] 万 军,顾伟瑾,王海云,等. 双侧子宫动脉化疗栓塞术治疗剖宫产后瘢痕妊娠大出血的临床应用[J]. 介入放射学杂志, 2009, 18: 499 - 502.
- [2] Asano T, Ikegaki I, Satoh S, et al. Mechanism of action of a novel antivasospasm drug, HA1077 [J]. J Pharmacol Exp Ther, 1987, 241: 1033 - 1040.
- [3] Feigin VL, Rinkel GJ, Algra A, et al. Calcium antagonists in patients with aneurysmal subarachnoid hemorrhage: a systemic review[J]. Neurology, 1998, 50: 876 - 883.
- [4] Kassell NF, Torner JC, Jane JA, et al. The international cooperative study on the timing of aneurysm surgery. part 2: surgical results[J]. J Neurosurg, 1990, 73: 37 - 47.
- [5] Linn FH, Rinkel GJ, Algra A, et al. Incidence of subarachnoid hemorrhage: role of region, year, and rate of computed tomography: a meta-analysis[J]. Stroke, 1996, 27: 625 - 629.
- [6] Bonita R, Thomson S. Subarachnoid hemorrhage: epidemiology, diagnosis, management and outcome[J]. Stroke, 1985, 16: 591 - 594.
- [7] Somlyo AP, Somlyo AV. Ca^{2+} sensitivity of smooth muscle and nonmuscle myosin II: modulated by G proteins, kinases, and myosin phosphatase[J]. Physiol Rev, 2003, 83: 1325 - 1358.
- [8] 李 毅,肖顺武,任光阳,等. 盐酸法舒地尔对蛛网膜下腔出血后脑血管痉挛的防治[J]. 临床医药, 2008, 17: 56 - 57.
- [9] 范晓强,沈 杰,张雪娜,等. 法舒地尔在肝癌血管介入治疗中的应用[J]. 介入放射学杂志, 2011, 20: 740 - 742.

- [10] Mohri M, Shimokawa H, Hirakawa Y, et al. Rho-kinase inhibition with intracoronary fasudil prevents myocardial ischemia in patients with coronary microvascular spasm [J]. J Am Coll Cardiol, 2003, 41: 15 - 19.
- [11] Rivera P, Ocaranza MP, Lavandero S, et al. Rho kinase activation and gene expression related to vascular remodeling in normotensive rats with high angiotensin I converting enzyme levels[J]. Hypertension, 2007, 50: 792 - 798.
- [12] Li FH, Xia W, Li WA, et al. Inhibition of rho kinase attenuates high flow induced pulmonary hypertension in rats [J]. Chin Med J(Engl), 2007, 120: 22 - 29.
- [13] Kishi T, Hirooka Y, Masumoto A, et al. Rho-kinase inhibitor improves increased vascular resistance and impaired vasodilation of the forearm in patients with heart failure [J]. Circulation, 2005, 111: 2741 - 2747.

(收稿日期:2011-12-28)

(本文编辑:侯虹鲁)

·临床研究 Clinical research·

支架辅助弹簧圈介入栓塞颅内宽颈动脉瘤

王书祥 甄 勇 吕朋华 孙 陵 王福安 耿素萍 蔡明玉 黄文诺
葛 俊 王立富

【摘要】 目的 探讨支架辅助弹簧圈介入栓塞治疗颅内宽颈动脉瘤的方法和疗效。**方法** 回顾性分析 16 例患者的临床资料,应用支架包括 Neuroform 6 枚和 Enterprise 10 枚。**结果** 所有支架均成功释放并行弹簧圈栓塞,即刻造影动脉瘤获得完全及大部分栓塞 13 例,瘤颈残留 1 例,部分栓塞 2 例。14 例患者术后 3 ~ 12 个月复查,13 例完全及大部分栓塞中 11 例复查未见复发,瘤颈残留 1 例 6 个月后复查复发,再次行支架植入完全栓塞,部分栓塞 2 例复查时瘤腔消失。**结论** 通过支架辅助对宽颈动脉瘤瘤颈重塑及弹簧圈的介入栓塞作用,使动脉瘤栓塞疗效满意。

【关键词】 动脉瘤;宽颈;支架;弹簧圈;栓塞

中图分类号:R543.4 文献标志码:B 文章编号:1008-794X(2012)-06-0501-03

Stent-assisted coiling for the treatment of wide-necked intracranial aneurysms WANG Shu-xiang, ZHEN Yong, LÜ Peng-hua, SUN Ling, WANG Fu-an, GENG Su-ping, CAI Ming-yu, HUANG Wen-nuo, GE Jun, WANG Li-fu. Department of Interventional Radiology, Subei People's Hospital, Yangzhou, Jiangsu Province 225009, China

Corresponding author: WANG Shu-xiang, E-mail: wayne_hsu@yahoo.cn

【Abstract】 Objective To explore the method and efficacy of interventional embolization with stent-assisted coiling for the treatment of wide-necked intracranial aneurysms. **Methods** Interventional stent-assisted coiling procedure was carried out in 16 patients with wide-necked intracranial aneurysms. A total of 16 stents were used in all the procedures, including 6 Neuroform stents and 1 Enterprise stents. The clinical data were retrospectively analyzed. **Results** All the stents were successfully deployed and the occlusion of intracranial aneurysms with coils was accomplished in all patients. Angiography performed immediately after the procedure showed that complete or subtotal obliteration of the aneurysm was achieved in 13 cases, residue of aneurysm neck was detected in 1 case and partial embolization was seen in 2 cases. Follow-up checkups performed within 3 - 12 months after the treatment revealed that no recurrence was seen in 11 among the 13 patients who had obtained complete or subtotal occlusion of the intracranial aneurysms. The

patient who showed residue of aneurysm neck had a relapse at six months after the treatment. On re-examination the aneurysmal cavity disappeared in the two patients who had obtained partial embolization. **Conclusion**

DOI:10.3969/j.issn.1008-794X.2012.06.014

作者单位: 225009 扬州 江苏省苏北人民医院介入科
(王书祥、吕朋华、孙 陵、王福安、耿素萍、蔡明玉、黄文诺、葛 俊、王立富); 神经外科(甄 勇)

通信作者: 王书祥 E-mail: wayne_hsu@yahoo.cn