

# 老年股骨颈骨折手术患者全身麻醉联合股外侧皮神经阻滞的效果观察



池张欢<sup>1</sup>, 项健雅<sup>1</sup>, 王均炉<sup>2</sup>

1. 温州医科大学温州市第三临床学院(温州市人民医院)麻醉科(浙江温州 325000)

2. 温州医科大学附属第一医院麻醉科(浙江温州 325000)

**【摘要】目的** 分析老年股骨颈骨折(femoral neck fracture, FNF)手术患者应用全身麻醉联合股外侧皮神经阻滞的效果。**方法** 选取2020年7月—2022年7月温州市人民医院收治的60例老年FNF手术患者。回顾性分析患者资料,按不同麻醉方式分为对照组(30例)行全身麻醉、研究组(30例)行全麻联合股外侧皮神经阻滞,比较两组疼痛程度、生命体征、术后苏醒情况、认知功能。**结果** 研究组术后1h、术后2h、术后1d及术后2d的VAS评分、去甲肾上腺素(NE)水平均显著低于对照组( $P < 0.05$ )。相较对照组,切皮时(T1)、骨膜剥离时(T2)、术毕(T3)及拔出喉罩时(T4),患者心率(HR)、平均动脉压(MAP)水平降低;拔管时间、麻醉苏醒及胃肠蠕动恢复时间均较对照组更短( $P < 0.05$ )。研究组术后1d、术后2d及术后3d简易智力状态检查量表(MMSE)评分则显著高于对照组( $P < 0.05$ )。**结论** 老年FNF手术患者应用全身麻醉联合股外侧皮神经阻滞,可能有利于减轻患者疼痛程度、维持生命体征稳定,且对患者认知功能影响较小。

**【关键词】** 股骨颈骨折; 股外侧皮神经阻滞; 全身麻醉; 麻醉效果; 认知功能; 疼痛程度

Observation on the effect of general anesthesia combined with lateral femoral cutaneous nerve block in elderly patients undergoing femoral neck fracture surgery

Zhang-Huan CHI<sup>1</sup>, Jian-Ya XIANG<sup>1</sup>, Jun-Lu WANG<sup>2</sup>

1. Department of Anesthesia, Wenzhou Third Clinical College (Wenzhou People's Hospital), Wenzhou Medical University, Wenzhou 325000, Zhejiang Province, China

2. Department of Anesthesia, The First Affiliated Hospital of Wenzhou Medical University, Wenzhou 325000, Zhejiang Province, China

Corresponding author: Jun-Lu WANG, Email: wangjunlu973@163.com

**【Abstract】Objective** To analyze the effect of general anesthesia combined with lateral femoral nerve block in elderly patients with femoral neck fracture (FNF). **Method** 60 elderly patients with FNF admitted to Wenzhou People's Hospital from July 2020 to July 2022 were selected. The data of the patients were retrospectively analyzed and the patients were divided into different groups according to different anesthesia methods. The control

DOI: 10.12173/j.issn.1004-5511.202302006

通信作者: 王均炉, 主任医师, Email: wangjunlu973@163.com

<http://whuznmedj.com>

group (30 cases) received general anesthesia, and the study group (30 cases) received general anesthesia combined with lateral femoral cutaneous nerve block. The pain degree, vital signs, postoperative recovery and cognitive function between the two groups were compared. **Result** VAS scores and the level of NE in the study group were lower than those in the control group at 1 h, 2 h, 1 d and 2 d after operation ( $P<0.05$ ); The levels of HR and MAP at T1, T2, T3 and T4 in the study group were lower than those in the control group ( $P<0.05$ ); The extubation time, anesthesia recovery time and gastrointestinal peristalsis recovery time of the study group were shorter than those of the control group ( $P<0.05$ ); The MMSE scores of the study group were higher than those of the control group on the first day, the second day and the third day after operation ( $P<0.05$ ). **Conclusion** The use of general anesthesia combined with lateral femoral cutaneous nerve block in elderly patients with FNF surgery may be beneficial to reduce pain and maintain the stability of vital signs, and has little impact on cognitive function of patients.

**【Keywords】** Femoral neck fracture; Lateral femoral cutaneous nerve block; General anesthesia; Anesthesia effect; Cognitive function; Degree of pain

股骨颈骨折 (femoral neck fracture, FNF) 是骨科多发病之一, 患者可出现下肢缩短、外旋畸形、剧烈疼痛及活动受限等症状, 以老年人为高发人群<sup>[1-2]</sup>。手术是治疗 FNF 的有效手段, 术中麻醉对手术安全性有着重要影响, 手术方式以全身麻醉、椎管内麻醉为主, 但全麻需进行插管、拔管等操作, 可能对机体循环稳定产生不利影响, 而椎管内麻醉时由于老年患者伴随退行性脊柱病或钙化增生等, 操作难度增加, 椎管内麻醉成功率降低, 且老年病人行椎管内麻醉血流动力学易引起波动<sup>[3-5]</sup>, 有研究对比神经阻滞和椎管内麻醉老年髋部骨折患者术后一年死亡率, 发现神经阻滞组术后 30 天和 90 天的死亡风险显著降低<sup>[6]</sup>。近年股外侧皮神经阻滞在老年 FNF 手术中得到应用, 不仅具有操作简便优势, 且无需摆放特殊体位, 可以减轻患者因变换体位引起的疼痛。股外侧皮神经阻滞联合全麻相较于单纯全麻, 所用麻醉药物剂量较低, 可降低药物对人体呼吸、循环系统的干扰, 在围术期能维持一定的镇痛作用<sup>[7-8]</sup>。本文选取 60 例 FNF 老年患者, 分析其应用全身麻醉联合股外侧皮神经阻滞的效果。

## 1 资料与方法

### 1.1 研究对象

研究选取 2020 年 7 月—2022 年 7 月温州市人民医院收治的 60 例 FNF 老年患者为研究对象, 按麻醉方式不同分为对照组 ( $n=30$ ) 与研究

组 ( $n=30$ )。纳入标准: ①符合《成人股骨颈骨折诊治指南》中 FNF 诊断标准; ②美国麻醉医师协会 (ASA) 分级为 I-II 级; ③病历资料完整。排除标准: ①对麻醉药物过敏者; ②存在手术禁忌证者; ③合并凝血功能障碍者; ④合并外周神经损伤者; ⑤合并严重心脑血管疾病者。本研究经温州市人民医院伦理委员会审查通过 (WREC-2022-18)。

### 1.2 方法

两组患者均于入室后建立浅静脉通路, 监测血压、呼吸频率、血氧饱和度及脉搏等, 给予鼻导管吸氧, 氧气流量控制在 2 L/min。对照组行全身麻醉, 静脉注射舒芬太尼 0.4  $\mu\text{g}/\text{kg}$ ~0.7  $\mu\text{g}/\text{kg}$ 、丙泊酚 1 mg/kg~2 mg/kg、苯磺顺阿曲库铵 0.2 mg/kg 行麻醉诱导, 松弛肌肉后插入喉罩并给予机械通气, 术中给予七氟烷持续吸入行维持麻醉, 根据脑电双频指数 (BIS) 值 (40~60) 调整七氟烷吸入量, 术中平均动脉压波动不超过基础血压  $\pm 20\%$ 。研究组行全麻联合股外侧皮神经阻滞, 全麻用药方式与对照组相同, 术前 30 min 行股外侧皮神经阻滞, 超声定位下可视化股外侧皮神经后注药, 注射浓度为 0.5% 的盐酸罗哌卡因 10 mL, 采用超声短轴平面内进针。

### 1.3 观察指标

#### 1.3.1 疼痛程度

术后 30 min、术后 1 h、术后 2 h、术后 1 d 及术后 2 d 进行视觉模拟评分法 (VAS) 评估,

总分10分,10分为剧烈疼痛,0分即无痛,评分与疼痛度成正比。

### 1.3.2 疼痛因子水平

术后1 d、术后2 d及术后3 d,采集患者3 mL空腹静脉血,离心取血清,测去甲肾上腺素(NE)水平。

### 1.3.3 生命体征

于麻醉前(T0)、切皮时(T1)、骨膜剥离时(T2)、术毕(T3)及拔出喉罩时(T4),记录患者心率(HR)、平均动脉压(MAP)。

### 1.3.4 术后苏醒情况

记录拔管时间、麻醉苏醒时间、胃肠蠕动恢复时间。

### 1.3.5 认知功能

术后1 d、术后2 d及术后3 d开展简易智力状态检查量表(MMSE)评估。MMSE评估总分30分,评分与认知程度成正比,评分27~30分为认知程度正常,24~26分为轻度认知障碍,18~23分为中度认知障碍,<18分为重度认知障碍。

## 1.4 统计分析

数据采用SPSS 23.0软件分析,计量资料以均数和标准差( $\bar{x} \pm s$ )表示,组间比较采用 $t$ 检验,计数资料采用频数和百分比( $n, \%$ )表示,行 $\chi^2$ 检验。 $P < 0.05$ 为差异有统计学意义。

## 2 结果

### 2.1 一般情况

共纳入老年FNF手术患者60例,对照组平均年龄( $68.29 \pm 1.57$ )岁、研究组平均年龄( $68.35 \pm 1.46$ )岁,两组患者在年龄、性别构成、ASA分级和致伤原因方面的差异无统计学意义( $P < 0.05$ ),见表1。

### 2.2 疼痛程度

两组术后30 min VAS评分相比,差异无统计学意义( $P=0.086$ );研究组术后1 h、术后2 h、术后1 d及术后2 d VAS评分较对照组低( $P < 0.001$ ),见表2、图1。

表1 两组一般资料比较

Table 1. Comparison of general information between two groups

	对照组 ( $n=30$ )	研究组 ( $n=30$ )	$\chi^2/t$ 值	$P$ 值
性别			0.277	0.598
男	19 (63.33)	17 (56.67)		
女	11 (36.67)	13 (43.33)		
年龄(岁)	$68.29 \pm 1.57$	$68.35 \pm 1.46$	0.153	0.878
ASA分级			0.277	0.598
I级	17 (56.67)	19 (63.33)		
II级	13 (43.33)	11 (36.67)		
致伤原因			0.388	0.685
摔伤	9 (30.00)	8 (26.67)		
车祸伤	14 (46.67)	14 (46.67)		
坠落伤	7 (23.33)	8 (26.66)		

表2 两组疼痛程度评分比较 ( $\bar{x} \pm s$ )

Table 2. Comparison of scores of VAS between two groups ( $\bar{x} \pm s$ )

时间	对照组 ( $n=30$ )	研究组 ( $n=30$ )	$t$ 值	$P$ 值
术后30 min	$2.17 \pm 1.03$	$1.78 \pm 0.66$	1.746	0.086
术后1 h	$3.08 \pm 1.27$	$1.69 \pm 0.48$	5.607	<0.001
术后2 h	$3.54 \pm 1.09$	$1.87 \pm 1.06$	6.016	<0.001
术后1 d	$2.36 \pm 0.95$	$1.57 \pm 0.57$	3.905	<0.001
术后2 d	$1.59 \pm 0.36$	$1.21 \pm 0.27$	4.625	<0.001

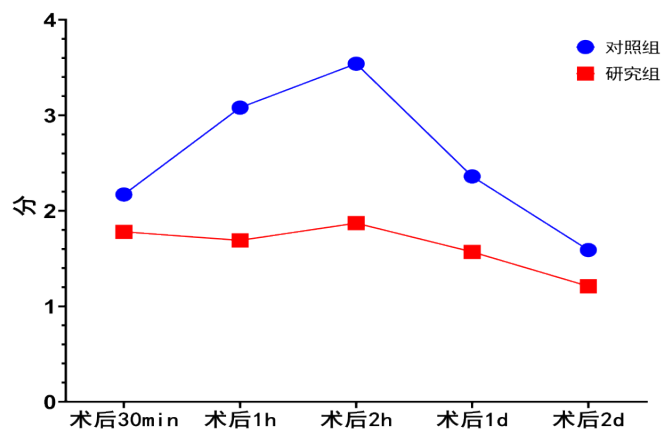


图1 术后麻醉效果

Figure 1. Postoperative anesthesia effect

### 2.3 疼痛因子水平

研究组术后1 d、术后2 d及术后3 d的NE水平较对照组低 ( $P < 0.05$ ), 见表3。

### 2.4 生命体征

研究组T1、T2、T3及T4时HR、MAP水平较对照组低 ( $P < 0.001$ ), 见表4。

### 2.5 术后苏醒情况

研究组拔管时间、麻醉苏醒时间及胃肠蠕动恢复时间较对照组短 ( $P < 0.05$ ), 见表5、图2。

### 2.6 认知功能

研究组术后1 d、术后2 d及术后3 d的MMSE评分较对照组高 ( $P < 0.001$ ), 见表6。

表3 两组疼痛因子比较 ( $\bar{x} \pm s$ )Table 3. Comparison of the level of NE between two groups ( $\bar{x} \pm s$ )

时间	对照组 (n=30)	研究组 (n=30)	t值	P值
术后1 d	320.28 ± 31.26	301.54 ± 31.57	2.310	0.024
术后2 d	374.26 ± 40.25	351.26 ± 31.92	2.452	0.017
术后3 d	391.44 ± 42.15	371.26 ± 30.09	2.134	0.037

表4 两组生命体征指标比较 ( $\bar{x} \pm s$ )Table 4. Comparison of HR and MAP between two groups ( $\bar{x} \pm s$ )

体征指标	对照组 (n=30)	研究组 (n=30)	t值	P值
HR (次/min)				
T0	71.51 ± 3.21	71.39 ± 3.18	0.145	0.884
T1	87.65 ± 5.24	67.66 ± 3.56	17.283	<0.001
T2	88.09 ± 6.45	73.15 ± 3.26	11.322	<0.001
T3	75.77 ± 5.64	67.86 ± 3.56	5.470	<0.001
T4	79.45 ± 4.16	65.87 ± 4.39	12.298	<0.001
MAP (mmHg)				
T0	72.15 ± 2.21	73.65 ± 1.59	1.005	0.318
T1	88.09 ± 4.01	71.07 ± 1.74	21.326	<0.001
T2	89.08 ± 6.16	71.84 ± 3.09	13.701	<0.001
T3	84.07 ± 3.16	72.07 ± 2.66	15.912	<0.001
T4	78.84 ± 4.96	71.26 ± 1.65	7.942	<0.001

表5 两组术后苏醒情况比较 ( $\bar{x} \pm s$ )

Table 5. Comparison of postoperative recovery between two groups ( $\bar{x} \pm s$ )

项目	对照组 (n=30)	研究组 (n=30)	t值	P值
拔管时间	13.54 ± 1.63	10.27 ± 1.06	9.211	<0.001
麻醉苏醒时间	17.69 ± 2.65	15.21 ± 2.06	4.046	<0.001
胃肠蠕动恢复时间	369.48 ± 70.54	332.15 ± 51.27	2.344	0.022

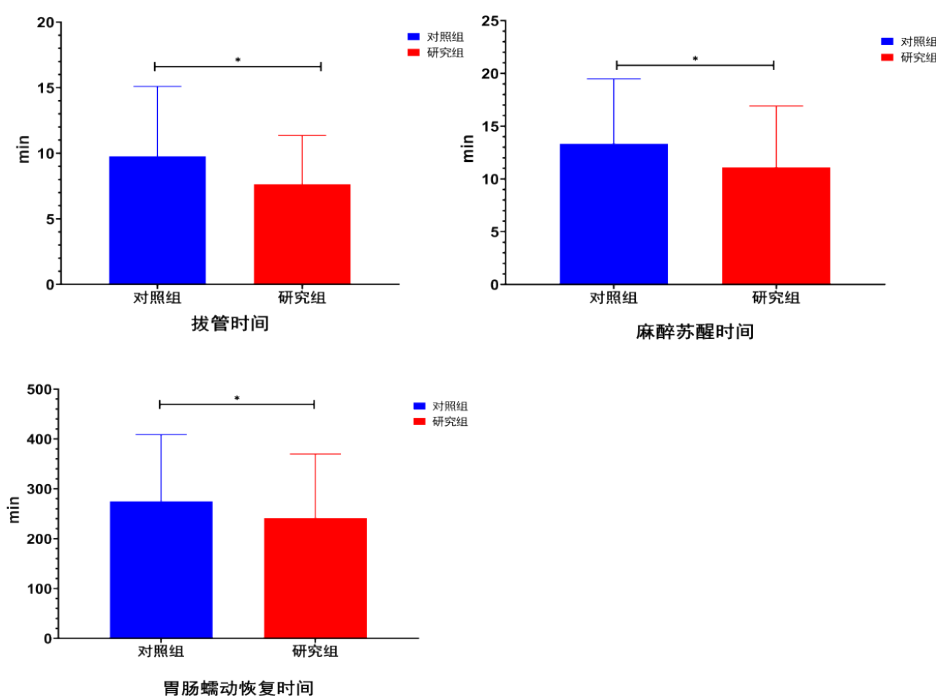


图2 术后苏醒情况

Figure 2. Postoperative recovery

注: \*表示P < 0.05

表6 两组认知功能评分比较( $\bar{x} \pm s$ )

Table 6. Comparison of MMSE scores between two groups ( $\bar{x} \pm s$ )

时间	对照组 (n=30)	研究组 (n=30)	t值	P值
术后1 d	19.26 ± 2.12	23.44 ± 2.47	7.033	<0.001
术后2 d	21.26 ± 2.07	24.66 ± 2.69	5.486	<0.001
术后3 d	23.59 ± 2.45	27.57 ± 2.15	6.687	<0.001

### 3 讨论

FNF 多发生于老年人群, 需及时开展手术治疗, 但因老年人机体多系统功能衰退, 且部分合并基础疾病如心脑血管病、呼吸系统疾病等, 进而增加麻醉风险, 严重者可出现呼吸抑制<sup>[9]</sup>。全麻、椎管内麻醉是 FNF 手术常用麻醉方式, 其中全麻引起的插管反应等可影响机体循环稳定, 而椎管内麻醉对伴有退行性脊柱病变患者操作时穿刺较

为困难, 且椎间隙变窄, 局麻药扩散范围增加, 不仅可引起血流动力学紊乱, 还可能导致严重心血管事件<sup>[10]</sup>。近年研究发现, 对需维持循环稳定的 FNF 老年手术患者, 选择外周神经阻滞麻醉更为适宜<sup>[11-13]</sup>。股外侧皮神经阻滞可有目的地对患肢进行麻醉, 患者舒适度较高, 且可减少血栓发生, 于超声引导下进行麻醉操作, 可准确分辨血管、神经等, 进而缩短药物起效时间, 并提高操作准确性<sup>[14-15]</sup>。



本研究中研究组行全麻联合股外侧皮神经阻滞,结果显示,研究组T1、T2、T3及T4时刻HR、MAP水平较对照组更低;研究组拔管时间、麻醉苏醒时间及胃肠蠕动恢复时间较对照组更短;研究组术后1 d、术后2 d及术后3 d MMSE评分较对照组更高,提示全麻联合股外侧皮神经阻滞可能可以缩短患者术后苏醒时间并维持生命体征,同时对认知功能影响较小。原因可能在于股外侧皮神经阻滞无需摆放特殊体位,从而避免对患者的疼痛刺激并减少血流动力学影响,操作更为简单安全,且股神经阻滞可使得一侧血管扩张从而改善血液循环,达到减少血栓形成的目的<sup>[16]</sup>。同时,股外侧皮神经阻滞可保留患者自主呼吸,以减少全麻麻醉药物剂量,有利于维持患者围麻醉期循环稳定,对肺功能等影响较小,患者苏醒时间更短<sup>[17]</sup>。股外侧皮神经阻滞采用超声显像定位技术,不仅可对目标神经的结构、穿刺针行进方向等进行观察,还可准确定位,以避免对神经组织造成损伤,安全性更高<sup>[18]</sup>。股外侧皮神经阻滞可以在术前、术中、术后对患肢起到一定程度的镇痛作用,减少疼痛刺激及应激反应,从而减轻对认知功能的影响<sup>[19]</sup>。FNF手术后患者常存在不同程度的疼痛情况<sup>[20]</sup>。本研究结果显示研究组术后1 h、术后2 h、术后1 d及术后2 d VAS评分较对照组更低,提示全麻联合股外侧皮神经阻滞,可能减轻患者术后疼痛程度。可能由于股外侧皮神经阻滞可阻滞患侧区域感觉神经的交感神经,抑制NE等释放,从而减轻患者术后疼痛程度<sup>[21]</sup>。

综上所述,FNF手术老年患者应用全麻联合股外侧皮神经阻滞,可能有利于减轻疼痛、维持生命体征稳定,对患者认知功能影响较小。

## 参考文献

- 李凯,林松斌,黄海珍,等.全身麻醉联合股外侧皮神经阻滞对股骨颈骨折手术患者术后疼痛程度及认知功能的影响[J].吉林医学,2022,43(11):3048-3051. [Li K, Lin SB, Huang HZ, et al. Effect of general anesthesia combined with lateral femoral cutaneous nerve block on postoperative pain degree and cognitive function of patients with femoral neck fracture[J]. Jilin Medical Journal, 2022, 43(11): 3048-3051.] DOI: 10.3969/j.issn.1004-0412.2022.11.055.
- Molliex S, Passot S, Morel J, et al. A multicentre observational study on management of general anaesthesia in elderly patients at high-risk of postoperative adverse outcomes[J]. Anaesth Crit Care Pain Med, 2019, 38(1): 15-23. DOI: 10.1016/j.accpm.2018.05.012.
- Nakase J, Shimozaki K, Asai K, et al. Usefulness of lateral femoral cutaneous nerve block in combination with femoral nerve block for anterior cruciate ligament reconstruction: a prospective trial[J]. Arch Orthop Trauma Surg, 2021, 141(3): 455-460. DOI: 10.1007/s00402-020-03724-9.
- 苏靖心,庞志路,崔明珠,等.超声引导下髋关节囊周围神经阻滞联合股外侧皮神经阻滞对行髋关节置换术患者术后早期康复的影响[J].中华实用诊断与治疗杂志,2022,36(6):638-641. [Su JX, Pang ZL, Cui MZ, et al. Effect of ultrasound-guided pericapsular nerve block combined with lateral femoral cutaneous nerve block on early rehabilitation after hip arthroplasty[J]. Journal of Chinese Practical Diagnosis and Therapy, 2022, 36(6): 638-641.] DOI: 10.13507/j.issn.1674-3474.2022.06.023.
- 苏靖心,刘月强,阮孝国,等.超声引导下髋关节囊周围神经阻滞联合股外侧皮神经阻滞对老年髋关节置换术后镇痛的影响[J].临床麻醉学杂志,2022,38(5):553-555. [Su JX, Liu YQ, Ruan XG et al. Effect of ultrasound-guided pericapsular nerve block combined with lateral femoral cutaneous nerve block on postoperative analgesia after hip replacement in the elderly[J]. Journal of Clinical Anesthesiology, 2022, 38(5): 553-555.] DOI: 10.12089/jca.2022.05.021.
- Funahashi H, Iwase T, Morita D. Changes in blood pressure during cemented hemiarthroplasty for hip fracture in elderly patients under spinal anaesthesia[J]. Nagoya J Med Sci, 2020, 82(4): 667-675. DOI: 10.18999/nagjms.82.4.667.
- 王泽鹏.超声引导下股神经阻滞、股外侧皮神经阻滞联合应用于老年患者髌骨骨折手术的临床价值研究[J].影像研究与医学应用,2022,6(7):179-181. [Wang ZP. Study on the clinical value of ultrasound-guided femoral nerve block and lateral femoral cutaneous nerve block in the operation of patellar fracture in elderly patients[J]. Journal of Imaging Research and Medical Applications, 2022, 6(7): 179-181.] DOI: 10.3969/j.issn.2096-3807.2022.07.060.
- 徐绘,尹治清,袁振飞.右美托咪定复合罗哌卡因

- 股外侧皮神经阻滞对髋关节置换术后镇痛效果的影响[J]. 吉林医学, 2021, 42(6): 1333-1335. [Xu H, Yin ZQ, Yuan ZF. Effect of dexmedetomidine combined with ropivacaine lateral femoral cutaneous nerve block on postoperative analgesia after hip replacement[J]. Jilin Medical Journal, 2021, 42(6): 1333-1335.] DOI: [10.3969/j.issn.1004-0412.2021.06.014](https://doi.org/10.3969/j.issn.1004-0412.2021.06.014).
- 9 尹海玲, 张文文, 单涛, 等. 髋关节囊周围神经阻滞联合股外侧皮神经阻滞与髂筋膜间隙阻滞用于老年患者全麻下全髋关节置换术效果的比较[J]. 中华麻醉学杂志, 2021, 41(5): 567-570. [Yin HL, Zhang WW, Shan T, et al. Comparison of efficacy of pericapsular nerve group block combined with lateral femoral cutaneous nerve block versus fascia iliaca compartment block in elderly patients undergoing total hip arthroplasty under general anesthesia[J]. Chinese Journal of Anesthesiology, 2021, 41(5): 567-570.] DOI: [10.3760/cma.j.cn131073.20210324.00514](https://doi.org/10.3760/cma.j.cn131073.20210324.00514).
- 10 邓笔生, 桂福鑫, 蒋龙华, 等. 超声引导下股神经阻滞联合股外侧皮神经阻滞用于老年患者髌骨骨折手术的临床效果[J]. 中国当代医药, 2021, 28(13): 130-132, 137. [Deng BS, Gui FX, Jiang LH, et al. Clinical effect of ultrasound-guided femoral nerve block combined with lateral femoral cutaneous nerve block for patella fracture surgery in elderly patients[J]. China Contemporary Medicine, 2021, 28(13): 130-132, 137.] DOI: [10.3969/j.issn.1674-4721.2021.13.036](https://doi.org/10.3969/j.issn.1674-4721.2021.13.036).
- 11 冯旭. B超引导下股神经和股外侧皮神经阻滞在老年髋关节置换术麻醉中的应用效果[J]. 中国当代医药, 2021, 28(10): 144-147. [Feng X. Application effect of ultrasound-guided femoral nerve and lateral femoral cutaneous nerve block in elderly patients undergoing hip replacement[J]. China Contemporary Medicine, 2021, 28(10): 144-147.] DOI: [10.3969/j.issn.1674-4721.2021.10.041](https://doi.org/10.3969/j.issn.1674-4721.2021.10.041).
- 12 Bugada D, Bellini V, Lorini LF, et al. Update on selective regional analgesia for hip surgery patients[J]. Anesthesiol Clin, 2018, 36(3): 403-415. DOI: [10.1016/j.anclin.2018.04.001](https://doi.org/10.1016/j.anclin.2018.04.001).
- 13 McGinn R, Talarico R, Hamilton GM, et al. Hospital-, anaesthetist-, and patient-level variation in peripheral nerve block utilisation for hip fracture surgery: a population-based cross-sectional study[J]. Br J Anaesth, 2022, 128(1): 198-206. DOI: [10.1016/j.bja.2021.10.011](https://doi.org/10.1016/j.bja.2021.10.011).
- 14 郑少强, 周雁, 赵尧平, 等. 超声引导下不同入路髂筋膜间隙阻滞用于老年患者股骨近端防旋髓内钉内固定术围术期镇痛效果的比较[J]. 临床麻醉学杂志, 2020, 36(10): 948-952. [Zheng SQ, Zhou Y, Zhao YP, et al. Comparison of fascia iliaca compartment in different ways for perioperative analgesia in elderly patients with intertrochanteric fracture treated with proximal femoral nail antirotation[J]. Journal of Clinical Anesthesiology, 2020, 36(10): 948-952.] DOI: [10.12089/jca.2020.10.003](https://doi.org/10.12089/jca.2020.10.003).
- 15 Dolan J, Williams A, Murney E, et al. Ultrasound guided fascia iliaca block: a comparison with the loss of resistance technique[J]. Reg Anesth Pain Med, 2008, 33(6): 526-531. DOI: [10.1016/j.rapm.2008.03.008](https://doi.org/10.1016/j.rapm.2008.03.008).
- 16 李寿春, 宋苗苗, 高玉蓓, 等. 右美托咪定辅助超声引导股神经-股外侧皮神经阻滞镇静效果的临床观察[J]. 海南医学, 2020, 31(19): 2490-2493. [Li SC, Song MM, Gao YB, et al. Sedation effect of dexmedetomidine in ultrasound-guided femoral nerve-lateral femoral cutaneous nerve block[J]. Hainan Medical Journal, 2020, 31(19): 2490-2493.] DOI: [10.3969/j.issn.1003-6350.2020.19.012](https://doi.org/10.3969/j.issn.1003-6350.2020.19.012).
- 17 柳春玲, 胡兢, 曾敏. 闭孔神经联合股外侧皮神经阻滞对老年髌骨骨折术后镇痛效果的临床研究[J]. 上海医药, 2019, 40(20): 28-29, 50. [Liu CL, Hu J, Zeng M. Analgesic effect of obturator nerve combined with lateral femoral cutaneous nerve block on elderly patients with hip fracture after operation[J]. Shanghai Pharmaceutical, 2019, 40(20): 28-29, 50.] DOI: [10.3969/j.issn.1006-1533.2019.20.009](https://doi.org/10.3969/j.issn.1006-1533.2019.20.009).
- 18 吴春林, 张光旭, 潘刘生, 等. 神经刺激仪引导下腰丛+坐骨神经+股外侧皮神经联合阻滞用于PFNA术的临床研究[J]. 中国医药科学, 2019, 9(20): 98-101. [Wu CL, Zhang GX, Pan LS, et al. Clinical study on application of combined block of lumbar plexus nerve, sciatic nerve and lateral femoral cutaneous nerve guided by nerve stimulator in PFNA[J]. Chinese Medical Science, 2019, 9(20): 98-101.] DOI: [10.3969/j.issn.2095-0616.2019.20.029](https://doi.org/10.3969/j.issn.2095-0616.2019.20.029).
- 19 刘松华, 方懿, 曹理言. 右美托咪定联合超声引导股神经与股外侧皮神经阻滞在髌骨骨折内固定取出术中的应用[J]. 中国现代医学杂志, 2020, 30(1): 77-81. [Liu SH, Fang Y, Cao LY. Application of dexmedetomidine

- combined with ultrasound-guided femoral nerve and lateral femoral cutaneous nerve block in surgery for removal of internal fixation after patellar fracture[J]. Chinese Journal of Modern Medicine, 2020, 30(1): 77-81.] DOI: 10.3969/j.issn.1005-8982.2020.01.014.
- 20 Vandebroek A, Vertommen M, Huyghe M, et al. Ultrasound guided femoral nerve block and lateral femoral cutaneous nerve block for postoperative pain control after primary hip arthroplasty: a retrospective study[J]. Acta Anaesthesiol Belg, 2014, 65(1): 39-44. <https://pubmed.ncbi.nlm.nih.gov/24988826/>.
- 21 刘文广, 沈琪, 单文婷, 等. 超声引导下股神经-股外侧皮神经阻滞在股骨骨折患者手术中的应用[J]. 中国医药科学, 2019, 9(6): 120-123. [Liu WG, Shen Q, Shan WT, et al. Application of ultrasound-guided femoral nerve-lateral femoral cutaneous nerve block in femoral fracture surgery[J]. Chinese Medical Science, 2019, 9(6): 120-123.] DOI: 10.3969/j.issn.2095-0616.2019.06.038.

收稿日期: 2023 年 02 月 02 日 修回日期: 2023 年 03 月 29 日

本文编辑: 李 阳 黄 笛

引用本文: 池张欢, 项健雅, 王均炉. 老年股骨颈骨折手术患者全身麻醉联合股外侧皮神经阻滞的效果观察[J]. 数理医药学杂志, 2023, 36(3): 215-222. DOI: 10.12173/j.issn.1004-5511.202302006  
Chi ZH, Xiang JY, Wang JL. Observation on the effect of general anesthesia combined with lateral femoral cutaneous nerve block in elderly patients undergoing femoral neck fracture surgery[J]. Journal of Mathematical Medicine, 2023, 36(3): 215-222. DOI: 10.12173/j.issn.1004-5511.202302006