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髓内固定对老年股骨转子间骨折患者关节功能的影响 *

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摘要 目的：研究髓内固定对老年股骨转子间骨折患者关节功能的影响。**方法：**选取 2016 年 9 月 ~2019 年 9 月我院收治的股骨转子间骨折的老年患者 80 例为研究对象，采用随机数字表法将其分为两组，每组各 40 例。对照组患者采用 Gamma 钉进行治疗，观察组患者采用股骨近端防旋髓内钉固定治疗。比较两组患者的围术期相关指标、骨折愈合时间、Harris 评分、临床治疗效果及并发症的发生情况。**结果：**观察组患者的手术时间、切口长度、术中出血量、术后引流量、住院时间及骨折愈合时间均显著少于或短于对照组（$P<0.05$）。术前，两组患者的 Harris 评分比较无统计学差异（$P>0.05$）；术后 6 个月及术后 12 个月，两组患者的 Harris 评分均较术前显著升高，且观察组显著高于对照组（$P<0.05$）。观察组患者的治疗优良率为 92.50 %，显著高于对照组（75.00 %，$P<0.05$）。两组患者深静脉血栓、感染、褥疮、固定松动、股骨头坏死及严重疼痛的发生率比较无统计学差异（$P>0.05$）。**结论：**股骨近端防旋髓内钉固定治疗老年股骨转子间骨折效果明显优于 Gamma 钉治疗，可有效缩短骨折愈合时间，提高髋关节功能。

关键词：股骨近端防旋髓内钉固定；股骨转子间骨折；老年；关节功能

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Effect of Intramedullary Fixation on the Joint Function of Elderly Patients with Intertrochanteric Fractures*

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ABSTRACT Objective: To study the effect of intramedullary fixation on the joint function of elderly patients with intertrochanteric fractures. **Methods:** Eighty elderly patients with femoral intertrochanteric fractures admitted to our hospital from September 2016 to September 2019 were selected as the study subjects. They were divided into two groups by the random number table method, with 40 cases in each group. Patients in the control group were treated with Gamma nails, and patients in the observation group were treated with proximal femoral anti-rotation intramedullary nails. The perioperative related indicators, fracture healing time, Harris score, clinical efficacy and complication rate were compared between the two groups. **Results:** The operation time, incision length, intraoperative blood loss, postoperative drainage volume, hospital stay and fracture healing time in the observation group were less or shorter than those in the control group ($P<0.05$). The Harris scores of both groups at 6 months and 12 months after operation were significantly higher than those preoperation, which were significantly higher in the observation group than those in the control group ($P<0.05$). The excellent and good rate of treatment in the observation group was 92.50 %, which was significantly higher than that in the control group (75.00 %, $P<0.05$). There was no significant difference in the incidence of deep vein thrombosis, infection, bedsore, loosening of fixation, necrosis of femoral head and severe pain between the two groups ($P>0.05$). **Conclusion:** Proximal femoral anti-rotation intramedullary nailing is significantly better than Gamma nail treatment in the treatment of elderly femoral intertrochanteric fractures, which can effectively shorten the fracture healing time and improve the hip function.

Key words: Proximal femoral anti-rotation intramedullary nail; Intertrochanteric fractures; Elderly; Function of joint

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前言

股骨转子间骨折是老年人常见的一种骨折类型，约占全身骨折的 3 %~4 %，骨质疏松、关节疾病和动作反应迟缓是引起该类骨折的重要原因[1-3]。随着我国老龄化的不断加剧，股骨转子间骨折的发生率也呈现逐年上升的态势，且该类骨折的死亡率较高，如不进行手术治疗，约有 30 %的患者在骨折后 1 年内死亡，严重威胁患者的生命安全及生活质量[4,5]。由于老年患者

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的各项生理机能退化，合并基础疾病较多，给临床治疗带来极大的困难[6,7]。

股骨转子间骨折临床治疗分为手术与非手术治疗，非手术治疗由于患者的制动时间较长，增加了深静脉血栓、压疮等并发症的发生率，且死亡率较高，预后较差[8,9]。随着手术技术的不断提高，手术的合并症不断降低，手术治疗股骨转子间骨折已经成为临床治疗的首选[10,11]。手术方式包括外固定、螺钉固定、髓内固定及人工假体置换等[12,13]，其中股骨近端防旋髓内钉固定是一种新型的髓内固定方式，具有较好的临床效果。Gamma钉是近年来广泛应用于临床的一种固定方法，是一种将髓内钉与动力髋相结合的技术，具有承受牵拉、剪切、扭转等作用[14,15]。但究竟哪种方法对于老年股骨转子间骨折患者的治疗效果更好，目前临床尚存在争议。因此，本研究主要比较了两种固定方式在老年股骨转子间骨折患者中的应用效果及对患者髋关节功能的影响。

1 资料与方法

1.1 一般资料

选取我院近3年收治的股骨转子间骨折老年患者80例。纳入标准：① 经影像学检查确诊；② 年龄≥ 65岁。排除标准：① 合并其他部位骨折者；② 有同侧股骨手术史者；③ 合并髋关节功能不良者；④ 合并重要器官功能障碍者。采用随机数字表法将所有患者分为两组，对照组40例，男22例，女18例；年龄65~73岁，平均68.32± 3.14岁；致伤原因：交通伤8例，摔伤16例，高空坠落伤16例；骨折Jensen-Evans分型：Ⅰ型7例，Ⅱ型11例；Ⅲ型14例，Ⅳ型8例。观察组40例，男20例，女20例；年龄65~75岁，平均69.23± 3.54岁；致伤原因：交通伤7例，摔伤18例，高空坠落伤15例；骨折Jensen-Evans分型：Ⅰ型8例，Ⅱ型12例；Ⅲ型13例，Ⅳ型7例。两组一般资料比较差异均无统计学意义(P>0.05)，具有可比性。

1.2 治疗方法

对照组采用Gamma钉固定治疗；于大转子顶端偏内近针，用开口器开口后插入导针，在C型臂X线机下确定导针处于正确的位置，扩髓后打入Gamma钉，在C型臂X线机下观察Gamma钉的位置，确定位置满意后切开外侧皮肤至大转子下，导针插入至股骨矩上，将股骨颈拉力螺钉拧入，打入防旋及远端螺钉，置引流管，逐层缝合。

观察组采用股骨近端防旋髓内钉固定治疗，于大转子上方3 cm开始向近端延伸约4 cm作一切口，于大转子尖端约1/3处置入导丝，C型臂X线机下明确导针位置，然后进行扩髓，用合适的主钉沿导丝位置插入股骨近端的髓腔中，同时于大腿外侧作一切口，置入螺旋刀片，安装远端锁定螺钉，并拧紧尾帽，置引流管，逐层缝合。

1.3 观察指标

① 两组围术期相关指标。② 采用Harris量表分别于术前、术后6个月和术后12个月对两组患者的髋关节功能进行评价。Harris量表包括关节活动度、行走能力、疼痛和功能四项，总分为100分，得分越高表示患者的髋关节功能越好。记录并比较两组的骨折愈合时间。③ 两组患者的临床治疗效果，优：患者的下肢活动正常，X线检查骨折处已愈合，Harris评分90~100分之间；良：下肢活动基本正常，X线检查骨折处愈合相当，Harris评分80~89分之间；中：下肢活动略有受限，X线检查骨折处正在愈合，Harris评分70~79分之间；查：下肢活动严重受限，X线检查骨折处没有愈合，Harris评分70以下。优良率=(优+良)/总例数。④ 两组患者并发症的发生情况。

1.4 统计学方法

采用SPSS19.0软件进行数据分析，计数资料以率(%)表示，组间比较行χ^2检验，计量资料以($\bar{x}\pm s$)表示，组间比较行t检验，以P<0.05为有统计学差异。

2 结果

2.1 两组围术期相关指标的比较

观察组手术时间、切口长度、术中出血量、术后引流量及住院时间少于或短于对照组(P<0.05)，见表1。

表1 两组患者围术期相关指标的比较($\bar{x}\pm s$)

Table 1 Comparison of the perioperative indexes between the two groups ($\bar{x}\pm s$)

Groups	n	Time of operation (min)	Length of incision (cm)	Peroperative bleeding (ml)	Postoperative drainage(ml)	Hospital stays (d)
Control group	40	82.35± 15.37	8.12± 2.03	215.38± 52.32	82.14± 20.34	25.31± 5.03
Observation group	40	55.64± 10.71*	4.12± 1.07*	111.85± 34.31*	71.05± 15.37*	21.08± 4.12*

Note: *P<0.05, Compare with the control group.

2.2 两组骨折愈合时间及Harris评分的比较

观察组患者骨折愈合时间显著短于对照组(P<0.05)。术后6个月及术后12个月，两组患者的Harris评分均交术前显著升高，且观察组显著高于对照组(P<0.05)，见表2。

2.3 两组临床治疗效果的比较

观察组治疗优良率显著高于对照组(92.50 %，vs.75.00 %，P<0.05)，见表3。

2.4 两组并发症发生情况的比较

两组患者深静脉血栓、感染、褥疮、固定松动、股骨头坏死及严重疼痛的发生率比较无统计学差异(P>0.05)，见表4。

3 讨论

股骨转子间具有特殊的解剖结构，股骨的上端上外侧是大转子，下内侧是小转子，转子间位于股骨颈和股骨干交界处，且均为骨松质，是承受剪式应力的最大部位。股骨颈和股骨干连接的内后方为致密的纵形骨板，成为股骨矩，决定着股骨转子间骨折的稳定性[16-18]。骨质疏松好发于转子间，且骨质较为薄弱，易发生骨折。股骨转子间骨折好发于老年人，约占60 %[19,20]。

手术治疗可对骨折部位进行复位和固定，减少患者卧床制动时间及并发症的发生率，成为临床治疗的首选[21,22]。手术治疗的目的主要是恢复骨折部位的稳定及关节功能，防止长期卧床形成尿路感染、深静脉血栓、废用性肌肉萎缩等并发症[23]。股骨近端防旋髓内钉固定术具有滑动加压、创伤小、可闭合复位等优点[24]。Gamma 钉结合了髓内钉和滑动加压鹅头钉的优点，具有弯矩小、力臂短等特点[25]。两者在老年股骨转子间骨折中的应用效果比较尚未有临床报道，本研究将两种方法应用于老年股骨转子间骨折患者并进行比较分析，旨在为临床治疗提供依据。

表 2 两组患者的骨折愈合时间及 Harris 评分的比较($\bar{x}\pm s$)

Table 2 Comparison of the fracture healing time and Harris score between the two groups($\bar{x}\pm s$)

Groups	n	Fracture healing time (week)	Harris score		
			Preoperation	At 6 months after surgery	At 12 months after surgery
Control group	40	17.98± 4.43	45.28± 10.02	71.02± 15.34*	88.21± 21.04*
Observation group	40	16.03± 4.12#	46.01± 9.85	82.65± 20.37*#	80.52± 9.27*#

Note: *$P<0.05$ compared with preoperation; #$P<0.05$, Compare with the control group.

表 3 两组患者的临床治疗效果的比较[例(%)]

Table 3 Comparison of the clinical therapeutic effects between two groups[n(%)]

Groups	n	Excellent	Good	Middle	Bad	Good rate
Control group	40	13 (32.50)	17 (42.50)	6 (15.00)	4 (10.00)	30 (75.00)
Observation group	40	25 (62.50)	12 (30.00)	2 (5.00)	1 (2.50)	37 (92.50)*

Note: *$P<0.05$, Compare with the control group.

表 4 两组患者并发症发生情况的比较[例(%)]

Table 4 Comparison of the incidence of complications between the two groups[n(%)]

Groups	n	Deep venous thrombosis	Infection	Bedsore	Fixed loose	Femoral head necrosis	Severe pain
Control group	40	2(5.00)	3(7.50)	2(5.00)	1(2.50)	1(2.50)	2(5.00)
Observation group	40	1(2.50)	2(5.00)	0(0.00)	0(0.00)	0(0.00)	1(2.50)

本研究结果显示股骨近端防旋髓内钉固定术治疗老年股骨转子间骨折的手术效果优于 Gamma 钉术，这是由于 Gamma 钉固定在术中需要暴露的范围更大，扩髓时会破坏髓腔内的血管，导致术中出血量增多，切口长度更长。而股骨近端防旋髓内钉固定只用 1 枚螺旋刀片，术中不需要钻孔，且主钉顶端有一定的外翻弧度，与股骨近端的解剖结构匹配性较高，可顺利进入髓腔，对髓腔内的血运影响较小[26,27]。由于股骨近端防旋髓内钉固定具有创伤小的特点，减少了术中出血量，利于术后恢复，可缩短术后引流量及住院时间。Harris 评分是目前临床常用的髋关节功能评分方法，且恢复髋关节功能是治疗老年股骨转子间骨折的最终目标[28,29]。本研究结果表明股骨近端防旋髓内钉固定术可有效改善老年患者的髋关节功能，缩短骨折愈合时间。股骨近端防旋髓内钉固定采用螺旋刀片进行锁定，无需钻孔成形，骨量不会丢失，具有较高的稳定性，抗内翻、抗旋、抗畸形的能力较强，固定效果好，患者骨折愈合较快，关节功能恢复较好。Gamma 钉固定由于手术出血量多，创伤较大，骨折愈合时间相对较长，且关节功能的恢复也受到了限制[30]。在并发症方面，Gamma 钉固定术后患者容易发生髋内翻、固定断裂、深静脉血栓等并发症。本研究中，两组并发症发生率比较无统计学差异，可能与本研究收集的病例数较少有关。

总之，股骨近端防旋髓内钉固定治疗老年股骨转子间骨折效果较好，可有效缩短骨折愈合时间，提高髋关节功能，值得临床推荐。本研究尚存在一定的不足，病例数较少，观察的周期较短，有待后续进行多中心的临床研究。

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