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SL-R 柄人工股骨头置换术与股骨近端防旋髓内钉治疗老年不稳定型骨质疏松性股骨粗隆间骨折的疗效比较研究 *

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摘要 目的：探讨股骨近端防旋髓内钉、SL-R 柄人工股骨头置换术两种术式治疗老年不稳定型骨质疏松性股骨粗隆间骨折的应用效果。**方法：**选取 2015 年 1 月 -2017 年 6 月间于河北医科大学附属秦皇岛市第一医院行手术治疗的老年不稳定型骨质疏松性股骨粗隆间骨折患者 98 例，以数表法将患者随机均分为对照组(n=49)和观察组(n=49)。其中对照组采用股骨近端防旋髓内钉，观察组采用 SL-R 柄人工股骨头置换术。比较两组患者临床各项指标、手术前后髋关节功能评分以及术后并发症发生情况。**结果：**观察组手术时间、术中失血量均高于对照组，但住院时间、开始负重时间则低于对照组（*P<0.05*）。观察组术后并发症发生率为 4.08%（2/49），低于对照组的 18.37%（9/49）（*P<0.05*）。术后 1 个月、3 个月时患者髋关节各项评分相比术前均有升高，术后 3 个月的各项评分高于术后 1 个月（*P<0.05*）；观察组术后 1 个月、3 个月各项评分均高于对照组（*P<0.05*）。**结论：**在老年不稳定型骨质疏松性股骨粗隆间骨折患者治疗过程当中，采用 SL-R 柄人工股骨头置换术可减少住院时间，疗效确切，无严重并发症，且可改善髋关节各项功能评分。

关键词：老年；不稳定型；骨质疏松性股骨粗隆间骨折；人工股骨头置换术；股骨近端防旋髓内钉；疗效

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Comparison of the Effect of SL-R Handle Artificial Femoral Head Replacement and Proximal Femoral Intramedullary Nail in the Treatment of Unstable Osteoporotic Intertrochanteric Fractures of the Femur in the Elderly*

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ABSTRACT Objective: To investigate the application of proximal femoral intramedullary nail and SL-R handle artificial femoral head replacement in the treatment of unstable osteoporotic intertrochanteric fractures of the femur in the elderly. **Methods:** 98 cases of unstable osteoporotic intertrochanteric fractures of the femur in the elderly who were treated in Qinhuangdao First Hospital affiliated to Hebei Medical University from January 2015 to June 2017 were selected, the patients were randomly divided into control group (n=49) and observation group (n=49) according to the number table method. The control group was treated with proximal femoral intramedullary nail,the observation group was treated with SL-R handle artificial femoral head replacement. The clinical indexes of the two groups,the hip function score before and after the operation and the postoperative complications were compared. **Results:** The operation time and blood loss in the observation group were all higher than those of the control group, but the time of hospitalization and the time of starting weight negative were lower than those of the control group (*P<0.05*). The incidence of postoperative complications in the observation group was 4.08% (2/49), which was lower than 18.37% (9/49) of the control group (*P<0.05*). The scores of hip function at 1 months and 3 months after operation were higher than that before operation,and the scores of hip function at 3 months after operation were higher than that of 1 months after operation (*P<0.05*). The scores of hip function at 1 months and 3 months after operation in the observation group were higher than those in the control group (*P<0.05*). **Conclusion:** In the treatment of unstable osteoporotic intertrochanteric fractures of the femur in the elderly, SL-R handle artificial femoral head replacement can reduce the time of hospitalization, the curative effect is accurate, no serious complications, and can improve the function of the hip joint score.

Key words: Elderly; Unstable; Osteoporotic intertrochanteric fractures of the femur; Artificial femoral head replacement; Proximal femoral intramedullary nail; Curative effect

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前言

股骨粗隆间骨折是股骨颈基底处到小粗隆间的骨折损伤，而骨质疏松性股骨粗隆间骨折是其中的一种，主要是由于患者长期的骨质疏松症导致的骨密度下降，骨强度降低，脆性增加，因而在轻微的外力作用下即可出现骨折[1-3]。老年患者是各型骨折最易出现的发生群体，其中以不稳定型骨质疏松性股骨粗隆间骨折最为常见[4]。目前，临床治疗主要可分为保守治疗和手术治疗，其中保守治疗导致患者长期卧床，易出现下肢静脉血栓、褥疮等并发症，影响患者预后[5,6]。因而，多数医师主张采用手术治疗，使患者尽早恢复髋关节功能从而进行正常的日常活动[7,8]。随着骨科手术的发展，股骨粗隆间骨折的手术治疗方式的选择已成为临床关注的重点，其中人工股骨头置换术和防旋髓内钉固定是两种常用的手术治疗方法[9,10]，但两种手术治疗的效果一直存在争议。为此，本研究通过对比股骨近端防旋髓内钉、SL-R 柄人工股骨头置换术两种不同术式治疗老年不稳定型骨质疏松性股骨粗隆间骨折的疗效，以期为该病的术式选择提供数据依据，现报道如下。

1 资料与方法

1.1 一般资料

以 2015 年 1 月 -2017 年 6 月期间在河北医科大学附属秦皇岛市第一医院进行手术治疗的老年不稳定型骨质疏松性股骨粗隆间骨折患者 98 例为研究对象，纳入标准：(1)患者经 X 射线检查诊断确诊；(2)年龄≥ 60 岁；(3)多伦多伊万斯(Tronzo-Evans)分型为 III、IV、V 型；(4)能耐受本研究手术治疗方式者。排除标准：(1)合并重要脏器功能障碍或恶性肿瘤者；(2)精神状态异常影响手术疗效判断者；(3)合并骨髓炎、骨肿瘤等其他骨科疾病者。将符合纳入标准患者按随机分配原则均分为对照组(n=49)和观察组(n=49)。组间基线资料比较，无统计学差异(*P>0.05*)，见表 1。患者签署知情同意书，研究方案经医院伦理学委员会批准。

表 1 两组患者的一般资料比较

Table 1 Comparison of general data between the two groups

Groups	n	Gender		Age (year)	Tronzo-EvansType			Fracture site	
		Male	Female		III	IV	V	Left hip	Right hip
Observation group	49	29	20	68.93± 7.02	19	20	10	27	22
Control group	49	25	24	69.95± 7.28	14	22	13	25	24
t/x^2	-	0.660		0.706	1.244			0.164	
P	-	0.417		0.482	0.537			0.686	

1.2 手术方法

观察组采用 SL-R 柄人工股骨头置换术治疗，患者采取硬膜外麻醉，取健侧截石位，于患侧髋关节后外侧作一手术切口，长约 8-10cm，将皮下组织、肌肉、关节囊等组织按顺序分离，使得骨折端、股骨颈结合部位完全暴露，在股骨小粗隆上端 1.5cm 处锯断，取出股骨头。对取出的股骨头进行测量，并据此选择合适的人工股骨头。对大、小转子部位进行保留和复位，以避免过多骨缺损。采用扩髓钻对股骨进行扩髓，扩髓后的股骨位置应有良好的稳定。然后以假体进行模型测试，并与股骨平面呈 10-20° 的前倾角度后进入髓腔，顶端标志为大转子，插入后的假体模型应与大转子顶端标志处于同一水平线上。然后对髋关节复位并进行测试，测试内容包括稳定性、关节活动度等。测试完成后取出假体模型，安装相应大小的 SL-R 柄股骨假体，再次检查患者的髋关节活动度状态，无异常后依次缝合手术切口、加压包扎，术后进行抗感染治疗。

对照组采用股骨近端防旋髓内钉治疗，患者采取硬膜外麻醉，取健侧截石位，采用骨科牵引床牵引复位，根据 X 光检查结果，确定股骨粗隆间骨折的具体位置，然后在股骨大粗隆见作手术切口，长约 3-5 cm。以大粗隆顶点处后外侧为导针置入点，将导针插入股骨髓腔内。大粗隆处扩髓采用空心钻，扩髓完成后，沿着扩髓通道将近端防旋髓内钉置入，同时撤出导针。在 X 光机的引导下，使置入的近端防旋髓内钉与股骨颈纵轴平行。随后测量撤出的主钉导针长度，在股骨外侧皮质处行扩孔处理，将螺旋形刀片放置在合适的位置固定。随后将远端锁钉放置在股骨远端定位孔，同时放置近端防旋髓主钉近端尾帽。手术完成后的操作同观察组。

1.3 评价方法

对两组患者术中失血量、手术时间、住院时间、术后开始负重时间进行统计比较。观察记录两组患者术后并发症发生情况。通过门诊复查的方式对患者进行为期 3 个月的随访观察，采用 Harris 髋关节功能评分量表[11]对两组患者术前、术后 1 个月、术后 3 个月的髋关节功能进行评价并比较，Harris 髋关节功能评分量表包括疼痛(总分 44 分)、日常活动(总分 11 分)、步态(总分 11 分)、行走辅助器(总分 11 分)、距离(总分 11 分)、畸形(总分 4 分)、活动范围(总分 8 分)等评价项目，该量表总分为 100 分，得分越高提示髋关节功能状态越佳。

1.4 统计学方法

数据处理采用 SPSS 25.0 完成，计量资料以($\bar{x}\pm s$)表示，实施 t 检验，计数资料以[n(%)]表示，实施 x^2 检验，检验标准设置为α=0.05。

2 结果

2.1 两组患者临床指标比较

观察组手术时间、术中失血量均高于对照组，但住院时间、术后开始负重时间均低于对照组(*P<0.05*)，见表 2。

2.2 术后并发症发生情况比较

观察组术后并发症发生率为4.08%(2/49)，低于对照组的18.37%(9/49)(*P<0.05*)，见表3。

表2 两组患者临床指标比较($\bar{x}\pm s$)

Table 2 Comparison of clinical indexes between the two groups($\bar{x}\pm s$)

Groups	n	Operation time /min	Blood loss /mL	Time of hospitalization /d	Start weight negative time after operation /d
Observation group	49	91.92± 18.73	208.23± 34.27	14.09± 3.39	20.97± 5.36
Control group	49	75.76± 14.38	109.73± 16.32	18.11± 4.47	29.36± 7.35
t		4.790	16.237	5.016	6.456
P		0.000	0.000	0.000	0.000

表3 两组患者术后并发症发生情况比较[n(%)]

Table 3 Comparison of postoperative complications in two groups of patients [n (%)]

Groups	n	Pulmonary infection	Deep venous thrombosis	Bedsore	Urinary tract infection	Total incidence
Observation group	49	0(0.00)	1(2.04)	0(0.00)	1(2.04)	2(4.08)
Control group	49	2(4.08)	2(4.08)	3(6.12)	2(4.08)	9(18.37)
x^2						5.018
P						0.025

2.3 手术前后髋关节 Harris 评分对比

患者术前髋关节 Harris 各项评分比较无差异(*P>0.05*)；术后1个月、3个月两组患者髋关节各项评分均较术前升高，且术后3个月的各项评分高于术后1个月(*P<0.05*)；观察组术后1个月、术后3个月各项评分均高于对照组(*P<0.05*)，见表4。

表4 两组患者手术前后髋关节 Harris 功能评分比较(分，$\bar{x}\pm s$)

Table 4 Comparison of hip Harris function scores in the two groups before and after operation($\bar{x}\pm s$)

Groups	Time	Pain	Daily activities	Gait	Auxiliary device	Distance	Malformation	Scope of activity	Total score
Observation group (n=49)	Before operation	5.23± 1.09	1.37± 0.76	2.32± 0.65	1.82± 0.64	2.13± 0.84	0.92± 0.23	1.22± 0.29	13.78± 2.87
	1 month after operation	35.98± 3.91*^	7.90± 1.87*^	5.89± 1.76*^	6.89± 2.02*^	7.95± 2.52*^	2.77± 0.48*^	3.59± 0.50*^	70.94± 4.86*^
	3 month after operation	42.78± 2.09*^	10.89± 2.01*^	9.94± 1.34*^	10.78± 1.65*^	10.12± 1.05*^	3.58± 0.28*^	4.48± 0.36*^	91.73± 3.62*^
Control group (n=49)	Before operation	5.01± 1.02	1.52± 0.91	2.11± 0.74	1.94± 0.71	2.04± 0.78	0.89± 0.25	1.30± 0.35	14.18± 2.92
	1 month after operation	30.21± 3.56*	5.49± 1.54*	4.17± 1.42*	4.95± 1.83*	5.63± 2.31*	2.19± 0.42*	2.89± 0.47*	55.53± 4.43*
	3 month after operation	37.92± 2.64*	8.73± 1.86*	7.53± 1.67*	8.73± 1.59*	8.87± 1.70*	3.10± 0.37*	3.95± 0.49*	79.24± 3.31*

Note: compared with before operation, **P<0.05*; compared with control group, ^*P<0.05*.

3 讨论

随着年龄的增长，老年人的骨量逐渐丢失，骨密度下降，骨内胶原合成减少，骨质疏松症也随之出现，容易增加骨骼的脆性，致使股骨粗隆间骨折发生率较高[12,13]。而股骨粗隆部位的骨质疏松发生率及病情严重程度均要高于其他部位，且股骨为人体重要的承重骨骼，易受到外力作用而出现骨折，对于老年患者的生命健康和生活质量产生严重的威胁[14-16]。对于股骨粗隆间骨折患者的治疗方式主要有保守治疗和手术治疗，其中手术治疗为首选的治疗方法，其可恢复患者骨折部位的力学结构的完整性，减少患者的卧床时间，使其能早日下床活动[17,18]。随着手术技术的不断更新，目前已有多种手术方法可应用于股骨粗隆间骨折的治疗中，主要包括人工股骨头置换、髓内固定、髓外固定、关节置换等，老年患者身体的各项机能均呈下降趋势，对手术的耐受能力降低，增加了手术治疗的难度[19,20]，因此如何选择手术治疗方案是广大临床医师需要着重考虑的问题。SL-R

柄人工股骨头置换术与股骨近端防旋髓内钉是两种常用的骨骼粗隆间骨折的手术治疗方法,两种术式均能对骨折处进行复位固定,但发挥疗效的特点却不尽相同[21,22]。

在本研究中,观察组手术时间、术中失血量均高于对照组,但住院时间、术后开始负重时间均低于对照组(*P<0.05*)。这是因为股骨近端防旋髓内钉操作简单、术中无较大切口,而人工股骨头置换术有较大的手术切口,增加了患者的术中失血量以及患者的手术时间[23,24]。但是股骨近端防旋髓内钉也存在着力学稳定性差、生物力学结构恢复慢等缺点,因此患者术后住院时间、开始负重时间较长[25,26]。在并发症发生率比较中,观察组并发症发生率低于对照组(*P<0.05*),这是因为人股骨头置换后可即刻发挥固定的作用,固定强度和稳定性均良好,可尽早的进行下床负重活动,减少长期卧床导致并发症的发生[27]。另外,SL-R 型柄初始稳定性具有抗轴向和旋转等特点,在假体与髓腔紧密相配的基础上,凭借着骨组织反应能力,新生骨组织可在假体表面多孔结构附着生长,起到生物学固定作用,因此,观察组的手术方式较高较好。术后 1 个月、术后 3 个月两组患者髋关节各项评分均较术前升高,且术后 3 个月的各项评分高于术后 1 个月;观察组术后 1 个月、术后 3 个月各项评分均高于对照组(*P<0.05*),表明 SL-R 柄人工股骨头置换术能够获得更好的术后效果,这是因为 SL-R 柄人工股骨头置换固定是以远端为主,股骨髓腔近段的形状及稳定性对其临床使用影响较小。SL-R 柄近端孔可将大粗隆骨折块缝合固定其上,利于回复近端解剖结构及早期稳定性,患者即便是在术后早期发生了轻微松动,双锥形柄也能自动重到位、重锁定,为早期下地负重创造了条件,提高患者术后髋关节的运动功能[28-30]。

综上所述,与股骨近端防旋髓内钉相比,SL-R 柄人工股骨头置换术临床疗效更好,术后恢复快、并发症发生率低、髋关节功能改善效果好,可在临床上进一步推广应用。

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