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·临床研究·

3种手术方式治疗老年股骨粗隆间骨折的近期疗效分析

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[摘 要] **目的** 探讨股骨近端防旋髓内钉(PFNA)内固定、人工股骨头置换术及解剖型锁定钢板(PF-LCP)内固定治疗老年股骨粗隆间骨折的近期疗效。**方法** 回顾性分析2016年3月至2018年7月沈阳市第五人民医院骨科收治的90例老年股骨粗隆间骨折患者的临床资料,根据手术方式的不同将其分为PF-LCP内固定组、PFNA内固定组和人工股骨头置换术组,每组30例。比较3组患者的围术期相关指标,Harris髋关节功能评分、优良率及术后并发症。**结果** 3组患者手术时间、住院时间比较,差异无统计学意义($P>0.05$);PFNA内固定组切口长度最短、术中失血量最少,人工股骨头置换术组切口长度最长、术中失血量最多,3组比较差异均有统计学意义($P<0.05$);人工股骨头置换术组术后完全负重时间最短,其次是PFNA内固定组,PF-LCP内固定组术后完全负重时间最长,3组比较差异均有统计学意义($P<0.05$)。PFNA内固定组、人工股骨头置换术组的临床优良率均高于PF-LCP内固定组($P<0.05$),但PFNA内固定组与人工股骨头置换术组比较,差异无统计学意义($P>0.05$)。PFNA内固定组、人工股骨头置换术组术后3、6、12个月的Harris髋关节功能评分高于PF-LCP内固定组($P<0.05$),但PFNA内固定组与人工股骨头置换术组比较,差异无统计学意义($P>0.05$)。3组患者术后并发症总发生率比较差异无统计学意义($P>0.05$)。**结论** 与PF-LCP内固定治疗相比,PFNA内固定和人工股骨头置换术治疗老年股骨粗隆间骨折近期疗效更好,PFNA内固定对患者造成的创伤更小,而人工股骨头置换术可让患者早日进行负重康复训练。

[关键词] 锁定钢板;老年;人工股骨头置换术;股骨粗隆间骨折;疗效;防旋髓内钉;内固定

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Short-term effect of three surgical methods in treatment of femoral intertrochanteric fracture in the elderly

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Abstract: Objective To explore the short-term effect of proximal femoral nail antirotation (PFNA) internal fixation,artificial femoral head replacement and proximal femur locking compression plate (PF-LCP) internal fixation in the treatment of femoral intertrochanteric fracture in the elderly. **Methods** The clinical data of 90 elderly patients with femoral intertrochanteric fracture who were treated in orthopedics department of Shenyang Fifth People's Hospital from March 2016 to July 2018 were retrospectively analyzed. According to different surgical methods,the patients were divided into the PF-LCP internal fixation group,the PFNA internal fixation group and the artificial femoral head replacement group,with 30 patients in each group. The perioperative indexes,Harris hip function scores,the excellent and good rate, and postoperative complications of the three groups were compared. **Results** There was no significant difference in operation time and hospital stay among the three groups ($P>0.05$). The PFNA internal fixation group had the shortest incision length and the least intraoperative blood loss,and the artificial femoral head replacement group had the longest incision length and the greatest intraoperative blood loss,there were statistically significant differences among the three groups ($P<0.05$). The artificial femoral head replacement group had the shortest postoperative full weight-bearing time,followed by the PFNA internal fixation group,and the PF-LCP internal fixation group had the longest postoperative full weight-bearing time,with statistically significant differences among the three groups ($P<0.05$). The clinical excellent and good rate of the PFNA internal fixation group and the artificial femoral head replacement group were higher than that of the PF-LCP internal fixation group ($P<0.05$),but no significant difference was found between the PFNA internal fixation group and the artificial femoral head replacement group ($P>0.05$). Harris hip function scores 3,6 and 12 months after surgery in the PFNA internal fixation group and the artificial femoral head replacement group were higher than those of the PF-LCP internal fixation group ($P<0.05$),but no significant difference was found between the PFNA internal fixation group and the artificial femoral head replacement group ($P>0.05$). There was no statistically significant difference in the total incidence of postoperative complications among the three groups($P>0.05$). **Conclusion** Compared with PF-LCP internal fixation,PFNA internal fixation and artificial femoral head replacement have better short-term effect for the treatment of elderly patients

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with femoral intertrochanteric fracture, and PFNA internal fixation causes less trauma to patients, and artificial femoral head replacement allows elderly patients to undergo early weight-bearing rehabilitation.

Keywords: locking plate; elderly; artificial femoral head replacement; femoral intertrochanteric fracture; curative effect; proximal femoral nail antirotation; internal fixation

股骨粗隆间骨折是指发生于股骨颈基底和小粗隆之间的骨折,好发于老年群体[1-2]。老年群体在外力作用下容易发生骨折,且骨折后长期卧床易引发泌尿系统感染、坠积性肺炎、褥疮等一系列并发症,病死率为15% ~20%[3]。随着我国逐渐步入人口老龄化社会,老年群体股骨粗隆间骨折的发病率呈逐年升高趋势[4]。手术是治疗老年股骨粗隆间骨折的常用方案,解剖型锁定钢板(proximal femur locking compression plate,PF-LCP)内固定[5-6]、股骨近端防旋髓内钉(proximal femoral nail antirotation,PFNA)内固定[7-8]、人工股骨头置换术[9]均是临床治疗老年股骨粗隆间骨折的常用术式,但有关上述3种术式的优劣尚存在一定争议。本研究就PF-LCP内固定、PFNA内固定、人工股骨头置换术的近期临床疗效展开分析,以期为临床治疗老年股骨粗隆间骨折的术式选择提供参考,现报告如下。

1 资料与方法

1.1 临床资料

回顾性分析沈阳市第五人民医院2016年3月至2018年7月收治的90例老年股骨粗隆间骨折患者的临床资料,根据手术方式的不同将其分为PF-LCP内固定组、PFNA内固定组以及人工股骨头置换术组,每组30例。各组临床资料比较差异无统计学意义($P>0.05$),具有可比性,见表1。纳入标准:①经CT等影像学手段证实为股骨粗隆间骨折;②年龄≥60岁;③符合手术指征;④临床资料完整,术后完成随访。排除标准:①合并心、肝、肾等脏器功能不全;②合并凝血功能障碍;③既往有股骨粗隆间骨折史;④伴有骨代谢疾病;⑤合并恶性肿瘤、免疫缺陷、急慢性感染。本研究经沈阳市第五人民医院医学伦理委员会批准。

表1 各组临床资料比较($n=30$)

组别	性别(例)		年龄(岁)	致伤原因(例)			Evans分型(例)			侧别(例)			受伤至手术时间(h)
	男	女		跌伤	交通事故伤	坠落伤	Ⅱ	Ⅲ	Ⅳ	左侧	右侧	双侧	
PF-LCP内固定组	17	13	71.68±1.92	12	8	10	8	11	11	12	10	8	10.68±1.27
PFNA内固定组	16	14	71.05±2.64	11	10	9	9	10	11	11	11	8	10.97±1.58
人工股骨头置换术组	18	12	70.97±2.71	12	11	7	13	7	10	10	9	11	10.92±2.35

1.2 方法

PF-LCP内固定组:患者取仰卧位,全身麻醉,C型臂X射线机透视下复位,于股骨粗隆顶点下2 cm处作1个长约10 cm的纵行切口,彻底暴露骨折部位,根据套筒的指向将3枚导针置入股骨颈、股骨头软骨面下,选取适宜大小的钢板置于股骨矢状位中轴位置,根据导针的指向拧入3~4枚适宜长度的锁定螺钉,透视下置入远端螺钉,术毕后缝合伤口。

PFNA内固定组:患者取仰卧位,全身麻醉,C型臂X射线机透视下协助患者患肢复位,复位满意后于股骨大粗隆近端作1个长5~8 cm的纵行切口,于大粗隆顶点置入导针,沿导针开髓置入适宜大小的PFNA,置入妥当后,置入导针至股骨颈的中下部,沿导针钻透外侧皮质后置入股骨螺旋刀片并锁紧,置入远端剩余锁钉,钉尾旋入尾帽,术毕后缝合伤口。

人工股骨头置换术组:患者取仰卧位,全身麻醉,取髋关节后侧作1个长10~15 cm的切口,暴露切开关节囊,取出股骨头,截断股骨颈,保留股骨矩,扩髓后放入对应型号生物型股骨部假体柄,装配对应大小人工股骨头假体,逐层缝合伤口。

1.3 观察指标

记录3组患者的围术期指标变化情况,包括切口长度、手术时间、术中失血量、术后完全负重时间、住院时间。记录3组患者术后并发症发生情况,包括肺部感染、泌尿系统感染、髋内翻、螺钉松动等。术后通过电话或门诊复查的方式随访12个月,术前及术后3、6、12个月采用Harris髋关节功能评分评价患者总有效率。疗效判定标准[10]:90分及以上为优;80~89分为良;70~79分为可;70分以下为差。总有效率=(优例数+良例数)/总例数×100%。

1.4 统计学方法

采用SPSS 25.0统计学软件进行数据分析,计量资料以均数±标准差($\bar{x}\pm s$)表示,组间两两比较采用*LSD-t*检验,组内两两比较采用配对t检验,3组间比较采用单因素方差分析;计数资料以率(%)表示,采用χ^2检验,检验标准设置为$\alpha=0.05$。以$P<0.05$为差异有统计学意义。

2 结果

2.1 各组围术期指标比较

3组患者手术时间、住院时间比较,差异无统计学意义($P>0.05$);PFNA内固定组切口长度最短、术中失血量最少,人工股骨头置换术组切口长度最长、术中失血量最多,3组比较差异均有统计学意义($P<0.05$);人工股骨头置换术组术后完全负重时间最短,其次是PFNA内固定组,PF-LCP内固定组术后完全负重时间最长,3组比较差异均有统计学意义($P<0.05$),见表2。

表2 各组围术期指标比较($\bar{x}\pm s$,$n=30$)

组别	手术时间(min)	切口长度(cm)	术中失血量(mL)	术后完全负重时间(d)	住院时间(d)
PF-LCP内固定组	106.71±8.30	8.38±0.92	246.87±21.64	84.71±4.47	23.26±1.72
PFNA内固定组	104.63±9.35	6.32±0.75*	137.84±22.69*	63.12±5.31*	23.72±1.58
人工股骨头置换术组	104.38±7.13	10.82±0.65*#	362.28±28.51*#	12.33±1.15*#	23.86±1.69
F	1.671	25.812	33.648	37.619	1.067
P	0.125	0.000	0.000	0.000	0.348

*:与PF-LCP内固定组比较,$P<0.05$;#:与PFNA内固定组比较,$P<0.05$

2.2 各组临床疗效比较

PFNA内固定组、人工股骨头置换术组的临床优良率高于PF-LCP内固定组($P<0.05$);但PFNA内固定组与人工股骨头置换术组比较,差异无统计学意义($P>0.05$),见表3。

表3 各组临床疗效比较[$n=30$,例(%)]

组别	优	良	可	差	优良
PF-LCP内固定组	7(23.33)	12(40.00)	7(23.33)	4(13.33)	19(63.33)
PFNA内固定组	10(33.33)	16(53.33)	3(10.00)	1(3.33)	26(86.67)*
人工股骨头置换术组	11(36.67)	16(53.33)	3(10.00)	0(0)	27(90.00)*
χ^2					7.923
P					0.019

*:与PF-LCP内固定组比较,$P<0.05$

2.3 各组Harris髋关节功能评分比较

各组术前Harris髋关节功能评分比较差异无统计学意义($P>0.05$);3组患者术后3、6、12个月Harris髋关节功能评分均呈升高趋势($P<0.05$);PFNA内固定组、人工股骨头置换术组术后3、6、12个月的Harris髋关节功能评分高于PF-LCP内固定组($P<0.05$);但PFNA内固定组与人工股骨头置换术组比较差异无统计学意义($P>0.05$),见表4。

表4 各组Harris髋关节功能评分比较($\bar{x}\pm s$,$n=30$,分)

组别	术前	术后3个月	术后6个月	术后12个月
PF-LCP内固定组	44.61±5.87	57.10±6.34#	71.26±6.83#△	79.63±6.41#△▲
PFNA内固定组	44.06±4.02	68.22±5.12*#	79.18±7.90*#△	86.78±6.51*#△▲
人工股骨头置换术组	44.23±6.55	69.29±6.24*#	80.80±6.84*#△	87.75±6.71*#△▲
F	2.569	19.426	18.102	23.672
P	0.123	0.000	0.000	0.000

*:与PF-LCP内固定组比较,$P<0.05$;#:与术前比较,$P<0.05$;△:与术后3个月比较,$P<0.05$;▲:与术后6个月比较,$P<0.05$

2.4 各组并发症发生情况比较

各组患者术后并发症总发生率比较差异无统计学意义($P>0.05$),见表5。

表5 各组并发症发生情况比较[$n=30$,例(%)]

组别	肺部感染	泌尿系统感染	髋内翻	螺钉松动	合计
PF-LCP内固定组	2(6.67)	1(3.33)	0(0)	2(6.67)	5(16.67)
PFNA内固定组	1(3.33)	2(6.67)	1(3.33)	1(3.33)	5(16.67)
人工股骨头置换术组	3(10.00)	1(3.33)	0(0)	0(0)	4(13.33)
χ^2					0.172
P					0.919

3 讨论

股骨粗隆间骨折为临床多发的骨折类疾病,由于老年群体各项机能退化,且老年人多伴有不同程度的骨质疏松症,故为此类骨折的高发人群,轻微的外力作用即可发生骨折,且多属于不稳定骨折[11-12]。临床针对此类骨折的治疗方案较多,包括保守治疗及外科手术治疗,其中保守治疗愈合速度较慢,且易发生髋内翻,概率为40%~50%,故临床医师多建议患者选择外科手术治疗[13]。由于股骨粗隆血运较为丰富,术后及时采取有效的干预可获得较好的预后。当前治疗股骨粗隆间骨折的手术方式有人工股骨头置换术和内固定,其中内固定包括PFNA内固定和PF-LCP内固定。PF-LCP内固定利用螺钉和钢板之间锁扣形成的固定角度固定骨折,但由于此类固定方式可引起应力集中,一定程度上会影响固定的稳定性,不易克服骨折术后早期负重形成的髋关节内收力[14-15]。PFNA内固定是在股骨近端髓内钉基础上改良设计而成,具有良好的抗旋转和成角稳定性,可使松质骨更密集,能防止股骨颈塌陷及旋转,有利于增加稳定性[16-17]。人工股骨头置换术具有手术简单、术后完全负重时间早、髋关节功能康复快等优点,但同时也具有损伤大、费用高以及术后易发生感染等缺点[18]。

本研究结果显示,人工股骨头置换术、PFNA内固定在术后完全负重时间上优于PF-LCP内固定。这主要是因为PF-LCP无法提供良好的早期力学支撑,导

致髋关节功能恢复进程减慢[19-20]。同时,PF-LCP 内固定术中需分离的组织较多,创伤较大,失血量较多。而 PNFA 内固定符合微创原则,具有手术操作方便、切口小、出血量少等优点,能够减少对骨膜和血供的破坏,加上其特制的螺旋刀片不仅有防旋功能,还可减少骨量丢失,能够发挥良好的力学稳定作用[21]。人工股骨头置换术的优点在于其可促进患者早期下床负重活动,但其创伤大、出血多的缺点仍不可避免[22]。进一步分析临床疗效发现,与 PF-LCP 内固定治疗相比,PFNA内固定和人工股骨头置换术治疗老年股骨粗隆间骨折的疗效更为显著,提示临床可根据患者具体手术适应证选择 PFNA 内固定或人工股骨头置换术治疗。术后并发症总发生率方面,3 组比较差异无统计学意义,可见 3 种手术方案安全性均较好。值得注意的是,PFNA内固定适用于 Evans 分型Ⅲ型及以上的患者[21];同时,其有术后螺旋刀片穿出股骨头的可能,因此术中要注意开口位置的精确选择。人工股骨头置换术则更适合高龄、内固定松动断裂需翻修、合并严重并发症不能长时间卧床、严重骨折不稳定的患者,且由于手术操作难度相对更高,置换材料造价较为昂贵,因此要求患者需要有一定的经济基础;此外,由于手术需要切除股骨头并清理大量软组织,对于施术者要求较高,如患者耐受能力差,则不建议采用此术式;若采用植骨固定则可能引起术后严重疼痛。这也提示临床应根据患者具体手术指征及经济情况,选择适宜的手术方案治疗。

综上所述,与 PF-LCP 内固定治疗相比,PFNA 内固定和人工股骨头置换术是治疗老年股骨粗隆间骨折更好的手术方法,PFNA 内固定对患者机体的创伤较小,而人工股骨头置换则可以促进患者较早进行术后负重活动,但鉴于其手术操作难度和较为昂贵的经济费用,临床应根据患者指征及个人需要合理选择手术方案。

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·临床研究·

胸腺肽 α1 对经口寰枢椎复位内固定术后医院获得性肺炎患者 CRP、PCT 及免疫细胞亚群的影响

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[摘 要] **目的** 探讨胸腺肽 α1 对经口寰枢椎复位内固定术(TARP)后医院获得性肺炎患者血清 C 反应蛋白(CRP)、降钙素原(PCT)及免疫细胞亚群的影响。**方法** 选择 TARP 后出现医院获得性肺炎患者 72 例,根据治疗方案不同将其分为观察组(35 例)和对照组(37 例)。患者在确诊为医院获得性肺炎的早期均给予广谱抗生素、雾化祛痰、肠内营养、纠正水电解质紊乱等治疗,其中观察组在上述治疗方案的基础上加用皮下注射胸腺肽 α1。观察 2 组患者治疗前后血清 CRP、PCT 水平的变化及免疫细胞亚群 $CD3^+$、$CD4^+$、$CD8^+$、$CD4^+/CD8^+$ 水平的变化。**结果** 治疗后 2 组患者血清 CRP 及 PCT 水平较治疗前均有所降低($P<0.05$),且观察组较对照组下降更为明显($P<0.05$)。2 组患者免疫细胞亚群中的 $CD3^+$、$CD4^+$、$CD4^+/CD8^+$ 较治疗前均有所升高($P<0.05$),且观察组较对照组升高更为明显($P<0.05$);对照组 $CD8^+$ 水平与治疗前比较,差异无统计学意义($P>0.05$),观察组 $CD8^+$ 水平较治疗前下降,差异有统计学意义($P<0.05$)。**结论** 加入胸腺肽 α1 治疗 TARP 后医院获得性肺炎,可有效降低患者血清 CRP 及 PCT 水平,并调节免疫细胞亚群中的 $CD3^+$、$CD4^+$、$CD8^+$、$CD4^+/CD8^+$ 等水平,改善免疫应答水平。

[关键词] 经口寰枢椎复位内固定术;医院获得性肺炎;CRP;PCT;免疫细胞亚群

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Effect of thymosin α1 on CRP, PCT and immune cell subsets in patients with hospital-acquired pneumonia after transoral atlantoaxial surgery

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Abstract: Objective To investigate the effect of thymosin α1 on C-reactive protein (CRP), procalcitonin (PCT) and immune cell subsets in patients with hospital-acquired pneumonia after transoral atlantoaxial reduction plate (TARP). **Methods** Seventy-two patients with hospital-acquired pneumonia after TARP were selected and divided into the observation group (35 cases) and the control group (37 cases) according to different treatment plans. At the early stage of hospital-acquired pneumonia, both two groups were given broad-spectrum antibiotics, atomized expectoration, enteral nutrition, correction of water and electrolyte disorders, etc. And thymosin α1 was added to the observation group. Changes of serum CRP and PCT levels and $CD3^+$, $CD4^+$, $CD8^+$, $CD4^+/CD8^+$ levels of immune cell subsets before and after therapy were recorded in both two groups. **Results** After treatment, serum CRP and PCT levels in both two groups were decreased compared with those before treatment ($P<0.05$), and the decrease was more significant in the observation group than that in the control group ($P<0.05$). The levels of $CD3^+$, $CD4^+$, and $CD4^+/CD8^+$ of the two groups were all higher than those before treatment ($P<0.05$), and the increase in the observation group was more significant than that in the control group ($P<0.05$). The level of $CD8^+$ in the control group was not different from that before treatment ($P>0.05$), while it was lower than that before treatment in the observation group ($P<0.05$).

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