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人工半肩关节置换治疗肱骨近端粉碎骨折的疗效及影响因素分析

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摘要 目的:探讨人工半肩关节置换治疗肱骨近端粉碎骨折的疗效及其影响因素。**方法:**选择 2010 年 1 月-2013 年 12 月间我院收治的肱骨近端粉碎骨折患者 80 例,随机分为研究组和对照组,每组 40 例,研究组应用人工半肩关节置换治疗,对照组应用切开复位内固定治疗。对比两组的术中情况、术后疼痛强度以及不良情况发生情况,术后应用 Constant-Murley 评分评价两组肩关节功能。应用多因素 Logistic 回归分析分析疗效影响因素。**结果:**研究组手术时间、术中出血量均显著低于对照组 ($P<0.05$);研究组 Constant-Murley 中疼痛、ADL、ROM 和总分评分显著优于对照组 ($P<0.05$);手术前,两组患者 VAS 评分无统计学差异 ($P>0.05$),手术后两组患者 VAS 评分显著降低,术后 5 d、15 d、30 d 和 60 d,研究组 VAS 评分显著低于对照组 ($P<0.05$);对照组患者肌力不足、异位骨化等不良反应发生率显著高于对照组 ($P<0.05$)。以 Constant-Murley 总分为因变量,以年龄、性别、是否合并内科疾病、受伤原因、骨折分型、受伤时间为自变量,经 Logistic 分析显示,年龄、合并内科疾病、骨折分型、受伤时间是肱骨近端粉碎性骨折疗效的影响因素 ($P<0.05$)。**结论:**人工半肩关节置换治疗肱骨近端粉碎骨折安全有效,具有很高的临床价值,值得临床推广,同时在手术中应对影响疗效的因素予以注意,提高治疗效果。

关键词:人工半肩关节;肱骨近端;粉碎骨折;疗效

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Analysis on the Effects and Influencing Factors of Hemiarthroplasty for Proximal Humeral Splintered Fracture

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ABSTRACT Objective: To explore the effects and the influencing factors of hemiarthroplasty for proximal humeral splintered fracture. **Methods:** 80 cases of proximal humeral splintered fracture patients administered in our hospital between January 2010 and December 2013 were selected and randomly divided into the study group and the control group, 40 cases were in each group. The study group used artificial semi shoulder joint replacement therapy, while the control group was treated with open reduction and internal fixation. Degree of pain, postoperative adverse circumstances were compared. Constant-Murley score was used to evaluate the postoperative shoulder joint function. Multiple factor Logistic regression analysis was used to evaluate the factors influencing the efficacy. **Results:** The amount of bleeding, operation time of study group were significantly lower and shorter than those of the control group ($P<0.05$). According to the Constant-Murley scores, ADL, ROM and pain scores of the study group were significantly better than those of the control group ($P<0.05$). Before operation, the VAS scores of the two groups showed no significant difference ($P>0.05$). After operation, VAS score decreased significantly, after 5 d, 15 d, 30 d and 60 d, VAS scores of the study group were significantly lower than those of the control group ($P<0.05$). More adverse reactions, including insufficient muscle strength and heterotopic ossification, were observed in the study group than in the control group ($P<0.05$). With Constant-Murley score as the dependent variable, age, sex, complicated internal medicine diseases, cause of injury, fracture type, injured time as variables, the Logistic analysis showed that such items as age, internal medicine diseases, fracture type and injury time were the influencing factors of proximal comminuted fracture of humerus ($P<0.05$). **Conclusion:** Hemiarthroplasty for proximal humeral splintered is safety and effective, and is of high clinical value, which worth the clinical promotion. At the same time, for improving the therapeutic effect, the influencing factors should be paid attention to.

Key words: Hemiarthroplasty; Proximal humerus; Splintered fracture; Effect

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肱骨近端骨折是临床上一种常见的骨折,包括肱骨外科颈在内及其以上部位的骨折,约占全身骨折的 4~5%,且大多为复

杂、移位和不稳定的骨折^[1,2]。尤其是肱骨近端粉碎性骨折,患者关节功能基本丧失,传统内固定手术治疗后患者关节功能恢复较差,部分患者可出现肱骨头缺血性坏死等严重并发症,给临床治疗带来了困难^[3]。人工关节置换技术是近年来广泛应用的外科技术,随着该技术的日益成熟,越来越多的学者倾向于采用人工关节置换技术治疗肱骨近端粉碎性骨折,但相关报道较

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少^[4]。我院近年来应用人工半肩关节置换治疗肱骨近端粉碎性骨折,取得了满意疗效,先报道如下。

1 资料与方法

1.1 一般资料

选择 2010 年 1 月 -2013 年 12 月间我院治疗肱骨近端粉碎骨折的患者共 80 例,所有患者均术前均行肩关节 X 线检查、CT 扫描诊断为肱骨近端粉碎性骨折,Neer 分型:三部分骨折 20 例,三部分骨折并伴有肩关节脱位 14 例,四部分骨折 36 例,四部分骨折并伴有肩关节脱位 10 例。男性 24 例,女性 56 例,年龄为 47-85,平均(64.2±2.7)岁。80 例患者随机分为研究组和对照组。研究组 40 例,男性 11 例,女性 29 例,年龄 49-85 岁,平均年龄(64.9±3.2)岁,Neer 分型:三部分骨折 10 例,三部分骨折并伴有肩关节脱位 7 例,四部分骨折 18 例,四部分骨折并伴有肩关节脱位 5 例。对照组 40 例,男性 13 例,女性 27 例,年龄 47-83 岁,平均年龄(63.7±2.5)岁,Neer 分型:三部分骨折 10 例,三部分骨折并伴有肩关节脱位 7 例,四部分骨折 18 例,四部分骨折并伴有肩关节脱位 5 例。两组患者性别、年龄、骨折分型等无统计学差异($P>0.05$),具有可比性。

1.2 方法

研究组应用人工半肩关节置换治疗,患者全身麻醉,仰卧位,采用三角肌胸大肌入路,注意保护血管、神经及肩袖周围组织。沿肱骨解剖镜切开关节囊,暴露肱骨头,肱骨大小结节。尽量保护肌肉附着点,不要随意切除粉碎的骨片,取出粉碎的肱骨头,测量肱骨头大小,根据骨髓腔大小扩髓,并安装合适大小的肱骨试模,检查肱骨头和肱二头肌张力,确定肱骨颈干角和后倾角,充填骨水泥,植入假体,冲洗手术部位后放置引流管,逐层缝合伤口。对照组应用切开复位内固定治疗,患者行臂丛神经阻滞或全麻,仰卧位,选择三角肌与胸大肌间沟入路,注意保护血管、神经及肩袖周围组织,向外侧牵开三角肌,向内侧牵

开胸大肌,仔细辨认肱二头肌及大小结节位置,并以长头腱为标志钝性分离三角肌滑囊,确定肩袖是否损伤,根据对位对线原则行骨折复位,克氏针固定,在 C 臂 X 线机下检查复位情况,选择合适锁定钢板,安装导向器,拧入锁定螺钉,再次在 C 臂 X 线机下检查内固定情况,修复关节囊,放置引流管后逐层缝合。

手术后对比两组患者的治疗效果(Constant-Murly 评分)、疼痛强度(VAS 评分)以及不良情况的发生情况。

1.3 疗效评分

(1)Constant-Murly 评分^[5]:满分 100 分,疼痛占 15 分,生活能力(ADL)占 20 分,活动度(ROM)占 40 分,手法肌力评定三角肌肌力占 25 分,总分 90~100 分为优,80~89 分为良,70~79 分为可,70 分以下为差。(2)VAS 评分^[6]:在纸上划一条长度为 10 cm 的线,为 0 的一端表示无痛;为 10 的一端表示剧痛;程度不同的疼痛用中间部分来表示。

1.4 统计学方法

采用 SPSS13.0 统计软件分析,数据比较采用 X^2 检验,计量数据以($\bar{x} \pm s$)表示,计量资料采用 t 检验, $P<0.05$ 为差异具有统计学意义。应用多因素 Logistic 回归分析分析疗效影响因素。

2 结果

2.1 两组术中情况比较

研究组手术时间为(85.4±9.2)min、术中出血量为(258.7±22.5)mL 均显著少于对照组的(100.2±9.8)min、(285.4±27.8)mL,数据间差异有统计学意义($t=2.763, 2.765, P=0.028, 0.022$)。

2.2 两组 Constant-Murly 评分对比

研究组 Constant-Murly 中疼痛、ADL、ROM 和总分评分显著优于对照组,数据间差异有统计学意义($P<0.05$),见表 1。

表 1 两组 Constant-Murly 评分对比(分)
Table 1 Comparison of Constant-Murly score in two groups(score)

组别 Groups	n	疼痛 Pain	生活能力 ADL	活动度 ROM	肌力 Muscle force	总分 Total score
研究组 Study group	40	11.9±3.2	14.3±2.4	29.5±4.8	16.6±2.2	72.3±11.8
对照组 Control group	40	9.6±3.7	12.6±2.7	25.4±3.9	15.0±3.7	62.6±11.7
t 值 t value		2.406	2.673	2.682	1.483	2.732
P 值 P value		0.031	0.026	0.024	0.172	0.022

2.3 两组的疼痛强度对比

手术前,两组患者 VAS 评分无统计学差异($P>0.05$),手术两组患者 VAS 评分显著降低,术后 5 d、15 d、30 d 和 60 d 研究组 VAS 评分显著低于对照组,数据间差异有统计学意义($P<0.05$),见表 2。

2.4 两组不良反应对比

研究组患者肌力不足、异位骨化等不良反应发生率显著小

于对照组($P<0.05$),见表 3。

2.5 肱骨近端骨折疗效影响因素

以 Constant-Murly 总分为因变量,以年龄、性别、是否合并内科疾病、受伤原因、骨折分型、受伤时间为自变量,经 Logistic 分析显示,年龄、合并内科疾病、骨折分型、受伤时间是肱骨近端粉碎性骨折疗效的影响因素($P<0.05$),见表 4。

3 讨论

表 2 两组手术前后 VAS 评分对比(分)

Table 2 Comparison of VAS score before and after operation in two groups (score)

组别 Groups	n	术前 Before operation	术后 5d 5d post operation	术后 15d 15d post operation	术后 30d 30d post operation	术后 60d 60d post operation
研究组 Study group	40	7.42± 0.65	4.39± 0.37	2.35± 0.26	2.35± 0.26	2.26± 0.32
对照组 Control group	40	7.61± 0.62	4.53± 0.43	3.89± 0.27	3.05± 0.21	2.47± 0.36
t 值 t value		0.964	0.753	2.507	2.463	0.856
P 值 P value		0.242	0.341	0.032	0.035	0.288

表 3 两组不良反应对比[n(%)]

Tbale 3 Comparison of adverse reaction between two groups[n(%)]

组别 Groups	n	肌力不足 Insufficient muscle strength	异位骨化 Heterotopic ossification	感染 Infection
对照组 Control group	40	12(30.00)	10(25.00)	6(15.00)
研究组 Study group	40	2(5.00)	0(0)	0(0)
X ² 值 X ² value		4.329	5.714	3.243
P 值 P value		0.037	0.016	0.071

表 4 肱骨近端骨折疗效影响因素的多因素 Logistic 回归分析

Table 4 The multivariate Logistic regression analysis of effect of proximal humeral splintered fracture

因素 Factor	β 值 β value	标准误 SE	Wald 值 Wald value	P 值 P value	OR 值 OR value	95%置信区间 95% confidence interval
年龄 Age	0.463	0.121	7.235	0.032	1.022	0.432, 1.887
合并内科疾病 With internal diseases	0.732	0.134	10.375	0.006	1.765	1.232, 2.965
骨折分型 Fracture type	0.556	0.108	11.853	0.003	2.076	0.785, 3.293
受伤时间 Injury time	0.832	0.086	16.843	0.000	2.543	1.123, 2.986

肱骨近端粉碎骨折是常见的骨折类型之一,近年来患病人数与日俱增并且伴随各种并发症。肩关节在人体活动中起着极为重要的作用,而肱骨近端粉碎骨折会对患者肩关节的活动造成极大的影响。国内外对于肱骨近端粉碎骨折的治疗有多种方法,主要包括锁定钢板治疗和人工半肩关节置换两种常用的方法^[7,8]。目前,国内外学者对于肱骨近端粉碎性骨折选择内固定系统还是人工半肩关节置换仍存在争议^[9]。本研究对两种方法进行了比较。

从两组术中情况来看,人工半肩关节置换手术时间更短,术中出血量更少,对患者创伤更小。而两组患者术后 Constant-Murley 评分来看,研究组 Constant-Murley 中疼痛、ADL、ROM 和总分评分显著优于对照组,表明人工半肩关节置换治疗的疗效明显优于切开复位内固定治疗。这说明用人工半肩关节来置换原有的骨折关节,可以有效地将患者的骨折部位进行

复位,从而使其可以稳定地固定,以获得良好的治疗效果^[10,11]。但是研究发现进行人工肩关节置换术首先要掌握好手术的适应症,包括严重三部分骨折伴有骨质疏松、四部分骨折或不伴脱位、肱骨头压缩塌陷超过 40%及解剖颈骨折及肱骨头劈裂骨折^[12-14]。而患者自身大小节点与肩袖的愈合也是手术中的一大难点,肩袖止点重建必须要尽可能的解剖复位,牢固的重建大、小结节是术后肩关节功能恢复的关键所在。此外,陈旧性的肱骨近端粉碎骨折采用人工半肩关节置换术治疗,常常会形成 x 痕,造成患者的大小结节难以识别,从而加大患者的肩袖重建难度^[15-17]。因此严格掌握适应症,大小结节重建的质量能够影响治疗的效果,不仅如此患者的年龄,手术技巧也会对手术效果和疗效造成一定的影响。年龄越轻,越早进行人工半肩关节置换手术,术后恢复的效果越好。另外,人工半肩关节置换治疗相对于切开复位内固定治疗的 VAS 评分更低,这表明了人

工半肩关节置换手术能够缓解患者手术后所产生的局部疼痛感,并且治疗组不良情况发生的几率也相对更低,手术后能够积极配合康复锻炼,不仅可以控制手术后的感染,还能够促进伤口的愈合,可安全有效地避免手术后骨不连和骨髓炎等不良症状的发生^[18,19],这更便于让患者接受。掌握正确的手术技巧,并且在术后进行系统正确的康复计划才能更好的保证人工置换肩关节手术的成功。

本研究还对肱骨近端骨折疗效影响因素进行了分析,结果显示年龄、合并内科疾病、骨折分型、受伤时间是肱骨近端粉碎性骨折疗效的影响因素。因此在手术过程中,对于高龄患者,合并内科疾病患者应特别注意,另外必须正确的把握手术的指征,选择合适的假体重建肱骨的长度,提高治疗效果^[20]。

综上所述,人工半肩关节置换治疗肱骨近端粉碎骨折可靠、安全有效并且一定程度上减轻了患者痛苦,减少了骨折愈合时间,降低了医疗费用,患者容易接受,具有较高的临床价值,值得临床推广。

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国有着丰富的药用植物资源和海洋生物资源,要充分利用我国的资源优势,加大创新力度,提高我国在药物研发领域的地位。

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