doi: 10.13241/j.cnki.pmb.2015.09.019

椎体成形术治疗老年骨质疏松性脊柱骨折的临床研究

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摘要 目的:研究椎体成形术治疗老年骨质疏松性脊柱骨折的疗效。**方法:**选择 2012 年 1 月至 2014 年 1 月我院收治的 120 例老年骨质疏松性脊柱骨折患者，均使用 Sky 骨扩张系统经皮穿刺行椎体成型术治疗,74 例患者取俯卧位设为俯卧位组,46 例患者取侧卧位设为侧卧位组,比较两组患者术前及术后 3 d、3 个月时椎体高度、后凸畸形角(Cobb 角)及视觉疼痛模拟评分(VAS 评分)。**结果:**术前两组患者椎体高度比较差异具有统计学意义(F=4.231,P=0.042),术后 3d 及 3 个月两组患者椎体高度较术前明显增高,比较差异具有统计学意义(F=4.03,P=0.047)。术前两组患者 Cobb 角变化比较差异无统计学意义(F=3.042,P=0.072),术后 3 d 及 3 个月两组患者 Cobb 角均值较术前明显降低,比较差异具有统计学意义(F=9.86,P=0.021)。术前两组患者 VAS 评分比较差异无统计学意义(F=2.035,P=0.089),术后 3 d 及 3 个月两组患者 VAS 评分较术前明显降低,比较差异具有统计学意义(F=12.86,P=0.005)。**结论:**使用椎体成形术治疗老年骨质疏松性脊柱骨折疗效显著,可有效恢复椎体高度及 Cobb 角度,并可迅速缓解其疼痛症状。

关键词:骨质疏松;脊柱骨折;椎体成形术

中图分类号:R683.2 **文献标识码:**A **文章编号:**1673-6273(2015)09-1678-03

Clinical Study of Vertebroplasty in the Treatment of Elderly Osteoporotic Spinal Fracture

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ABSTRACT Objective: To study the efficacy of vertebroplasty in the treatment of elderly osteoporotic spinal fracture. **Methods:** A total of 120 elderly patients with senile osteoporotic spinal fracture were selected, who were admitted to West China Hospital of Sichuan University from January 2012 to January 2014, and treated by vertebroplasty with the Sky bone expander system through percutaneous puncture.74 elderly patients took a prone position (prone position group), 46, the lateral position (lateral position group), comparing the vertebral height, Cobb angle, and VAS score of the two groups before operation and 3d and 3months after operation. **Results:** There was statistical significance in the vertebral height between the two groups before operation (F=4.231, P=0.042), and the vertebral height of the two groups 3d and 3 months after operation was significantly higher than that before operation, with statistical significance (F=4.03, P=0.047). There was no statistical significance in the Cobb angle changes between the two groups before operation (F=3.042, P=0.072), but the mean Cobb angle of the two groups 3d and 3 months after operation was significantly lower than that before operation,with statistical significance (F=9.86, P=0.021). The VAS score in the two groups had no significant difference before operation (F=2.035, P=0.089), but the VAS score of the two groups 3d and 3 months after operation was significantly lower than that before operation,with statistical significance (F=12.86, P=0.005). **Conclusion:** Vertebroplasty has an obvious curative effect in the treatment of elderly osteoporotic spinal fracture, which can effectively restore the vertebral height and Cobb angle, and quickly relieve the symptoms of pain.

Key words: Osteoporosis; Spinal fracture; Vertebroplasty

Chinese Library Classification(CLC): R683.2 Document code: A

Article ID: 1673-6273(2015)09-1678-03

前言

近年来,随着我国人口老龄化程度的增加,临床老年脊柱骨折的发病率呈上升趋势,尤其以骨质疏松性脊柱骨折最为常见[1]。骨质疏松症(osteoporosis,Op)是一种单位体积内骨量减少,骨的微结构发生退变,骨强度降低而脆性增加,从而易造成患者以骨折为主要表现的全身性、系统性骨质疾病[2,3]。因其不明显的临床特征易被忽视,是危害老年患者健康的重要疾病[4]。引起的骨折及炎性并发症等是影响患者生活质量的重要危险因素,甚至可造成患者死亡[5]。本研究对我院收治的 120 例老年骨质疏松性脊柱骨折患者使用椎体形成术进行治疗，疗效显著,

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(收稿日期:2014-10-26 接受日期:2014-11-20)

现报道如下。

1 资料与方法

1.1 一般资料

选择我院 2012 年 1 月至 2014 年 1 月收治的老年骨质疏松性脊柱骨折患者 120 例,其中男 48 例,女 72 例;年龄 65～84 岁,平均(69.8± 2.9)岁;病程 1 周～3 个月,平均(1.4± 0.5)个月;发病部位:累及胸椎并腰椎 37 例,累及单一胸椎 35 例,累及单一腰椎 34 例,累及两个腰椎 14 例。所有患者术前均未表现出脊髓或神经根受损症状。术中患者行 CT 及 MRI 检查示,均为椎体压缩性骨折,表现为活动性病变,椎体压缩程度胸椎＜50%,腰椎＜75%,其中前缘压缩骨折 87 例,中央压缩骨折 33 例; 排除手术不耐、凝血功能障碍及椎体塌陷所致椎管受压＞20%者。

1.2 手术方法

所有患者均使用 Sky 骨扩张系统经皮穿刺行椎体成型术治疗,患者入室后常规检测心电图,74 例患者取俯卧位设为俯卧位组,46 例患者取侧卧位设为侧卧位组,两组患者均使用局麻或全麻,同时使用镇静剂,从一侧椎弓根注入骨水泥。在 X 线引导下确定病椎及椎弓根方向, 使用 1%利多卡因从皮肤穿刺点位置向椎弓根方向对穿刺通道软组织进行全层浸润麻醉,同时把进针点作为中点,在皮肤上作一 3 mm 切口,根据术中 X 线引导调整方向,经椎弓根刺入椎体。当穿刺针到达靶目标后将穿刺针芯退出,同时置入 Sky 骨扩张器系统,在 X 线引导下严密观察骨扩张器膨胀以及骨折的复位情况。待骨扩张到适当程度时取出骨扩张器,在 x 线机监视注入配制好的骨水泥于椎体中,当发现骨水泥出现渗漏时应立即停止注射,待骨水泥凝固后拔出套管,缝合手术伤口,检测患者生命体征平稳后即可结束手术。

1.3 观察指标及随访

X 线及 CT 扫描检查: 术后 3 d、3 个月分别对患者胸腰椎或腰椎标准正侧位 X 线检查。同时测量患者椎体高度(精确至 0.01 mm)、后凸畸形角(Cobb 角)及视觉疼痛模拟评分(VAS 评分)。椎体高度测量[6]:压缩椎体中央或前缘椎体上下缘距离。Cobb 角测量[7]:患椎上位椎体的上终板垂线 A 线与下位椎体的下终板垂线 B 线的交角 α 角, 其角度的大小可反映出脊柱后凸畸形的严重程度。VAS 评分[8]:在纸上画一条 10 cm 直线,两端分别标明有“0”和“10”,“0”表示无痛,“10”表示疼痛最剧烈,评分值越高,表示越疼痛。

1.4 统计学处理

应用 SPSS16.0 分析数据, 检验方法运用重复测量设计的方差分析,以 P＜0.05 差异有统计学意义。

2 结果

2.1 手术前后患者椎体高度变化比较

术前俯卧位组与侧卧位组患者椎体高度比较差异具有统计学意义(F=4.231,P=0.042),术后 3 d 及 3 个月两组患者椎体高度较术前明显增高,比较差异具有统计学意义(F=4.03,P=0.047)。

2.2 手术前后患者 Cobb 角的变化比较

术前俯卧位与侧卧位患者 Cobb 角变化比较差异无统计学意义(F=3.042,P=0.072),术后 3 d 及 3 个月两组患者 Cobb 角均值较术前明显降低, 比较差异具有统计学意义(F=9.86,P=0.021)。

表 1 手术前后两组患者椎体高度变化比较(mm)

Table 1 Comparison of the changes of vertebral height between the two groups before and after operation(mm)

组别 Groups	术前 Before operation	术后 3d 3d after operation	术后 3 个月 3 months after operation
俯卧位组 Prone position group	16.39	20.71	20.65
侧卧位组 Lateral position group	16.03	18.54	18.39

表 2 手术前后两组患者 Cobb 角的变化比较(°)

Table 2 Comparison of the changes of Cobb angle between the two groups before and after operation(°)

组别 Groups	术前 Before operation	术后 3d 3d after operation	术后 3 个月 3 months after operation
俯卧位组 Prone position group	28.35	12.43	13.04
侧卧位组 Lateral position group	28.95	15.96	16.78

2.3 手术前后患者 VAS 评分比较

术前俯卧位与侧卧位患者椎体成形术对 VAS 评分比较差异无统计学意义(F=2.035,P=0.089),术后 3 d 及 3 个月两组患者 VAS 评分较术前明显降低, 比较差异具有统计学意义(F=12.86,P=0.005)。

表 3 手术前后两组患者 VAS 评分比较(cm)

Table 3 Comparison of the VAS scores between the two groups before and after operation(cm)

组别 Groups	术前 Before operation	术后 3d 3d after operation	术后 3 个月 3 months after operation
俯卧位组 Prone position group	8.12	2.65	2.37
侧卧位组 Lateral position group	8.06	2.87	2.71

3 讨论

目前, 临床老年骨质疏松性椎体压缩骨折患者越来越多,一般新鲜骨折较陈旧骨折更容易复位,但骨质疏松性脊柱骨折患者因未表现出明显的急性外伤及体征而延误诊治,多在出现背痛症状时就诊发现, 且多椎体骨折也可能发生在不同时期,因而较难确定某一特定节段的发生时间[9,10]。目前,临床治疗方法主要包括卧床休息、药物止痛及激素应用等,但该方法往往造成患者坠积性肺炎、泌尿系统感染及下肢静脉血栓等并发症,甚至加重病情[11,12]。因此,更为合理有效的骨质疏松性脊柱骨折治疗手段受到人们关注。

有研究报道[13],Sky 骨扩张系统后凸成形术对新鲜骨折椎体恢复效果较好，而对陈旧性骨折椎体的术后复位效果一般。另有研究认为[14,15],椎体成形术后患者的椎体高度及 Cobb 角度的变化,并非椎体成形术操作将椎体抬高,而是患者俯卧位治疗时体位因过伸而复位，此时将骨水泥注入椎体内进行固化，将椎体固定在复位后的位置上,并增加椎体的耐压强度,同时改变了脊柱的后凸畸形,恢复了脊柱生理力线,从而达到治疗的目的[16,17]。本研究中,采用 Sky 骨扩张器系统椎体后凸成形术后,俯卧位组与侧卧位组患者椎体高度比较差异具有统计学意义(F=4.231,P=0.042),术后 3 d 及 3 个月患者 Sky 后凸成形术椎体高度较术前明显增高,比较差异具有统计学意义(F=4.03,P=0.047)。另外,俯卧位组与侧卧位组患者 Cobb 角变化比较差异无统计学意义（F=3.042,P=0.072），术后 3 d 及 3 个月患者 Sky 后凸成形术 Cobb 角均值较术前明显降低，比较差异具有统计学意义(F=9.86,P=0.021)。提示,采用 Sky 骨扩张器系统椎体后凸成形术治疗老年骨质疏松性脊柱骨折患者效果显著。本研究中,椎体成形术后,俯卧位组与侧卧位组患者椎体成形术对 VAS 评分变化比较差异无统计学意义(F=2.035,P=0.089),术后 3 d 及 3 个月患者 Sky 后凸成形术对 VAS 评分较术前明显降低,比较差异具有统计学意义(F=12.86,P=0.005)。椎体成形术对脊柱骨折患者的止痛作用主要通过骨水泥的稳定及支撑,同时骨水泥在病变部位短时间内便可凝固成团块,对因钙缺失或溶骨陛破坏造成的支撑力下降产生了阻抗作用,同时对微小骨折也起到了固定作用,使其在活动时不再碰触或刺激神经末梢圈而引起疼痛[18,19]；另外，在聚合反应时其产生 52～93℃的热能峰值,骨水泥周围的组织因此坏死,组织内的神经末梢同时遭到破坏,患者疼痛感消失或缓解[20]。

总之,使用椎体成形术治疗老年骨质疏松性脊柱骨折疗效显著,可有效恢复椎体高度及 Cobb 角度,并可迅速缓解其疼痛症状。

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