



比较经椎弓根与Smith-Peterson截骨对退变性侧后凸畸形冠矢状面平衡重建的影响

朱锋, 鲍虹达, 邱勇, 刘臻, 毛赛虎, 朱泽章, 何守玉, 王斌

210008 南京大学医学院附属鼓楼医院脊柱外科

Effect of pedicle subtraction osteotomy and Smith-Peterson osteotomy on coronal and sagittal balance restoration in patients with degenerative kyphoscoliosis

Zhu Feng, Bao Hongda, Qiu Yong, Liu Zhen, Mao Saihu, Zhu Zezhang, He Shouyu, Wang Bin

The Spine Surgery, Drum Hospital of Nanjing University Medical School, Nanjing 210008, China

- 摘要
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摘要 目的 比较经椎弓根椎体截骨 (pedicle subtraction osteotomy, PSO) 与Smith-Petersen截骨 (Smith-Petersen osteotomy, SPO) 对退变性脊柱侧后凸畸形患者冠、矢状面平衡重建的效果。方法 回顾性分析2007年5月至2010年11月行PSO或SPO矫形内固定术的47例退变性脊柱侧后凸畸形患者资料。PSO组25例, 男1例, 女24例; 年龄47~69岁, 平均(58.29±5.85)岁; 平均Cobb角47.67°±11.57°。SPO组22例, 男2例, 女20例; 年龄49~70岁, 平均(60.31±6.25)岁; 平均Cobb角38.33°±11.96°。所有患者随访时间均在两年以上。测量患者术前、术后及末次随访时冠状面Cobb角、冠状面躯干倾斜距离(TS)、顶椎偏移距离(AVT)、矢状面平衡(SVA)、胸椎后凸(TK)、腰椎前凸(LL)、骨盆投射角(PI)、骶骨倾斜角(SS)、骨盆倾斜角(PT)。结果 术前两组患者除PSO组TS显著大于SPO组外, 其余指标均匹配。两组患者术后SVA存在显著差异, 其余影像学参数比较差异均无统计学意义; 末次随访两组患者的影像学参数均无显著差异。两组患者术后和随访时, 除TS、TK与PI外, 其他参数分别与术前比较, 差异均有统计学意义。PSO组TS由术前37.21 mm下降至术后24.67 mm, 末次随访为21.69 mm, 而SPO组TS由术前18.91 mm增加至术后37.43 mm, 末次随访降至17.84 mm。PSO组术后SVA为-15.13 mm, 末次随访恢复至11.02 mm, 而SPO组术后SVA为16.68 mm, 末次随访为19.26 mm, 两组间SVA矫正值差异存在统计学意义。结论 PSO和SPO均能有效重建退变性脊柱侧后凸畸形的矢状面形态; PSO术后易出现SVA的过度矫正, 而SPO术后可出现冠状面失平衡; 但两者在随访过程中均可得到自发纠正。

关键词: 脊柱侧凸 脊柱后凸 截骨术

Abstract: Objective To compare the restoration of both coronal and sagittal balance following pedicle subtraction osteotomy (PSO) and Smith-Petersen osteotomy (SPO) for degenerative kyphoscoliosis. Methods Data of 47 patients with degenerative kyphoscoliosis, who underwent PSO or SPO from May 2007 to November 2011 in our center, were retrospectively analyzed. There were 25 cases of PSO and 22 of SPO. Long-cassette standing upright postero-anterior and lateral radiographs of the spine and pelvis were taken before, two weeks after surgeries and during follow-ups. The pre-, post-operative and follow-up parameters including Cobb angle, trunk shift (TS), apical vertebra translation (AVT), sagittal vertical axis (SVA), thoracic kyphosis (TK), lumbar lordosis (LL), pelvic incidence (PI), sacral slope (SS) and pelvic tilt (PT) were measured. Results The pre-operative parameters were matched between SPO and PSO groups except significantly larger TS in PSO group. Only SVA showed significant difference between the two groups postoperatively. No significant differences in parameters were observed between the two groups at the last follow-up. Significant differences were observed in terms of the improvement of Cobb angle, AVT, SVA, LL, PT and SS. TS in PSO decreased from 37.21 mm preoperatively to 24.67 mm postoperatively and it decreased to 21.69 mm at last follow-up. TS in SPO increased from 18.91 mm preoperatively to 37.43 mm postoperatively and it decreased to 17.84 mm at last follow-up. Conclusion Coronal and sagittal balance of patients with degenerative kyphoscoliosis can be well restored by both SPO and PSO despite different indications. Overcorrection of SVA is often seen in PSO group while the coronal balance in SPO group may not be well restored post-operatively which may attribute to post-operative posture. The postoperative imbalance

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of both coronal and sagittal plain could be corrected spontaneously during follow-ups.

Key words: Scoliosis Kyphosis Osteotomy

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作者简介: 邱勇, E-mail: scoliosis2002@sina.com

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