

· 临床论著 ·

内镜腰椎间盘切除术后复发的因素及预测模型[△]梁啸¹, 李东儒², 陈筱¹, 王叶新¹, 李衍朋¹, 高龙飞¹, 孟纯阳^{1*}

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摘要: [目的] 探讨经皮内镜腰椎间盘切除术 (percutaneous lumbar endoscopic discectomy, PELD) 后复发性椎间盘突出 (re-current lumbar disc herniation, rLDH) 的影响因素并建立预测模型。[方法] 回顾性分析 2017 年 1 月—2020 年 1 月作者采用 PELD 治疗的腰椎间盘突出症的 286 患者的临床资料。根据术后 3 年内是否出现复发分为复发组和未复发组, 采用单因素比较和多因素逻辑回归分析, 筛选出复发的相关因素, 并建立数学预测模型, 采用受试者工作特征 (ROC) 曲线等分析以评估模型的临床价值。[结果] 286 例患者中, 44 例确诊为复发, 占 15.4%; 242 例未复发, 占 84.6%。单因素比较表明, 复发组的 BMI [(25.8±3.0) vs (24.2±3.3), $P=0.004$] 和病程 [(17.9±18.3) 个月 vs (10.7±16.8) 个月, $P=0.01$] 均显著大于未复发组 ($P<0.05$); 复发组的术前影像 Modic 改变显著多于未复发组 [无/有, (30/14) vs (206/36), $P=0.006$]; 复发组术前影像测量椎间 ROM 显著大于未复发组 [(9.3±3.4)° vs (7.1±2.8)°, $P<0.001$]; 复发组经椎间孔入路手术比率显著大于未复发组 [TF/IL, (29/15) vs (114/128), $P=0.022$]。逻辑回归表明, BMI ($OR=1.154, 95\% CI 1.031\sim 1.291, P=0.013$)、病程 ($OR=1.023, 95\% CI 1.005\sim 1.042, P=0.013$)、Modic 改变 ($OR=3.143, 95\% CI 1.369\sim 7.070, P=0.007$)、椎间 ROM ($OR=1.264, 95\% CI 1.126\sim 1.419, P<0.001$) 和手术入路 (椎间孔/椎板间) ($OR=2.104, 95\% CI 1.007\sim 4.396, P=0.048$) 是复发的独立危险因素。按逻辑回归得出预测模型, 其预测值 ROC 分析的曲线下面积为 (AUC) 为 0.787 (95% CI 0.721~0.853); 模型校准曲线与实际曲线一致性较好; 决策曲线分析表明, 风险阈值为 10%~50% 时, 该模型可产生较大净获益。[结论] 本研究表明 BMI、病程、术前 Modic 改变、术前椎间 ROM 和手术入路是 PELD 术后 rLDH 的危险因素。本研究得出预测 rLDH 模型可能帮助临床医生判断术后复发风险。

关键词: 腰椎间盘突出症, 经皮内镜椎间盘切除术, 复发性椎间盘突出, 危险因素, 预测模型

中图分类号: R681.53 文献标志码: A 文章编号: 1005-8478 (2024)

Factors and a predicting model of recurrent lumbar disc herniation after percutaneous endoscopic lumbar discectomy // LI-ANG Xiao¹, LI Dong-ru², CHEN Xiao¹, WANG Ye-xin¹, LI Yan-peng¹, GAO Long-fei¹, MENG Chun-yang¹. 1. Department of Spinal Surgery, Affiliated Hospital, Jining Medical University, Jining 272000, China; 2. College of Clinical Medicine, Jining Medical University, Jining 272000, China

Abstract: [Objective] To explore the factors related to recurrent lumbar disc herniation (rLDH) after percutaneous endoscopic lumbar discectomy (PELD) and establish a predicting model. **[Methods]** A retrospective study was conducted on 286 patients who underwent PELD for lumbar disc herniation in our hospital from January 2017 to January 2020. Based on whether rLDH happened within 3 years after the primary PELD, the patients were fell into the recurrence group and non-recurrence group. Univariate comparison and multiple logistic regression analysis were performed to search the factors related to the recurrence, establish a mathematical predicting model and draw a Nomogram figure. Then, receiver operating characteristic (ROC) curve, and relative analysis were used to evaluate the clinical significance of this model. **[Results]** Among the 286 patients, 44 patients were diagnosed of rLDH, accounting for 15.4%, while the remaining 242 patients were confirmed as the non-rLDH, accounting for 84.6%. Regarding univariate comparison, the rLDH group was significantly greater than the non-rLDH group in terms of BMI [(25.8±3.0) vs (24.2±3.3), $P=0.004$] and course of disease [(17.9±18.3) months vs (10.7±16.8) months, $P=0.009$]. In addition, the rLDH group had significantly more Modic change in preoperative images than the non-rLDH group [no/yes, (30/14) vs (206/36), $P=0.006$], the former got significantly greater range of motion (ROM) in the affected segment measured on preoperative radiographs than the latter [(9.3±3.4)° vs (7.1±2.8)°, $P<0.001$]. Moreover, the rLDH group had significantly higher ratio the transforaminal approach than then

DOI:10.3977/j.issn.1005-8478.2024

[△]基金项目:国家自然科学基金项目(编号:81974345);山东省中医药科技项目(编号:M-2022245);济宁市重点研发计划项目(编号:2022XYNS049)

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