Clinical Course after Percutaneous Epidural Neuroplasty According to the Type of Single Level Herniated Lumbar Disc with 12 Months Follow-up

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Introduction

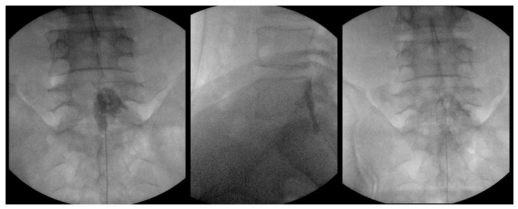
The purpose of this study is to determine whether treatment outcome is affected by the type of HLD and to evaluate effectiveness of PEN in single level HLD.

Methods

A consecutive series of 430 patients who underwent PEN for single level HLD were included in this study. Preoperatively, all patients were categorized into bulging (B), protrusion (P), extrusion (E) and sequestration (S) with Pfirrmann grade (G1 to G4). Visual analog scale (VAS) score, SF-12 and Odom's criteria were measured in preoperative and scheduled postoperative follow-up period (1, 3, 6 and 12 months).

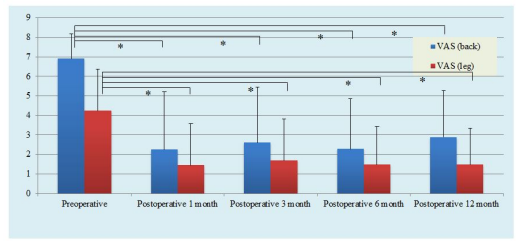
Results

There was no significant difference in treatment outcomes according to the type of HLD ($p>0.05$) except more decreased in VAS (leg) in E and S groups than in B and P groups ($0<0.05$). Subsequent surgery was considered in 59 patients (13.7%), and the operation was more frequently observed in E and S than B and P and in G2 to G4 than G1. Mean back pain and leg pain VAS of total follow-up patients were decreased respectively, from 6.90 and 4.23 in preoperative to 2.25 and 1.45 in 1 month, to 2.61 and 1.68 in 3 months, to 2.28 and 1.48 in 6 months, and to 2.88 and 1.48 in 12 months after PEN ($p<0.001$). More than 70% of all patients with PEN showed good and excellent Odom's criteria during 12 months follow-up, and more than 70% of patients with E and S type of HLD doesn't needed surgical treatment.

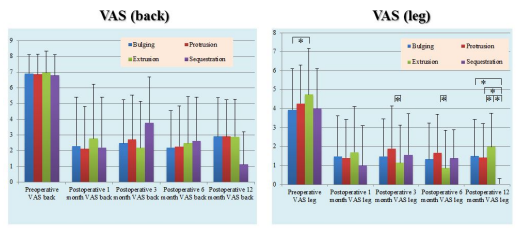


Catheter needle was introduced into the sacral epidural space under fluoroscopy

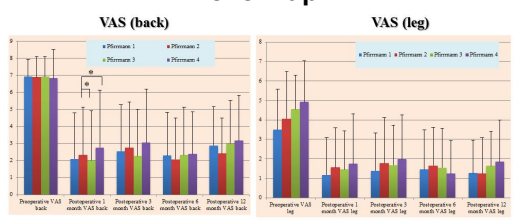
Mean VAS scores for back pain and leg pain of total 430 patients



Mean VAS scores for back pain (A) and leg pain (B) according to lumbar disc herniation type during 12 months of follow-up



Mean VAS scores for back pain (A) and leg pain (B) according to lumbar disc herniation type during 12 months of follow-up



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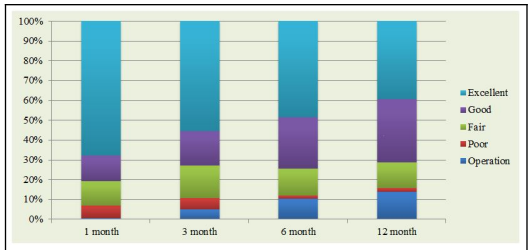
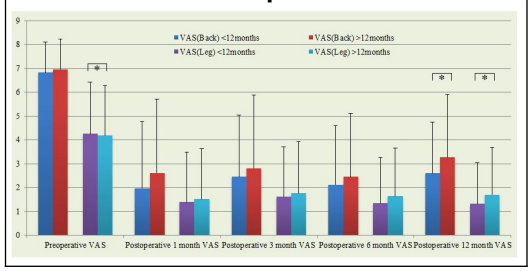


Overall success rates fulfilling Odom's criteria of "good" and "excellent" outcomes were 81.3% at 1 month, 73.1% at 3 months, 74.8% at 6 months, and 71.7% at 12 months after PEN treatment.

Mean VAS scores for back and leg pain according to the preprocedural symptom duration (less and more than 12 months) during 12 months of follow-up



Learning Objectives

More than 70% of all patients with PEN showed good and excellent Odom's criteria during 12 months follow-up, and more than 70% of patients with HLD could prevent from surgical treatment.

Conclusions

The efficacy of PEN was not differently affected by the different type of HLD. PEN is a safe and effective treatment for back and leg pain due to single level HLD in 12 months follow-up study.