

# 3<sup>rd</sup> International Conference and Exhibition on **Orthopedics & Rheumatology**

July 28-30, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

## Outcome of posterior spinal fixation with pedicle screws and rods system in thoracolumbar spinal fractures

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**Introduction:** Unstable thoracolumbar spinal fractures cause both mechanical and neurological complications. Unstable fractures are mainly treated surgically. Surgery is indicated to minimize pain, stabilize spine, correcting and preventing subsequent spinal deformity, early mobilization, reduction of morbidity and improvement in neurological function. Posterior internal fixation with titanium and stainless steel made pedicle screws and rods is becoming increasingly popular which are longitudinally anchored to the spine. The purpose of conducting this study is to find out the effectiveness of posterior internal spinal fixation in maintaining the stability of spine.

**Patients and Methods:** 50 patients from 15-70 years of age with unstable thoracolumbar spinal fractures from T7-L4 were included. 33 patients had fracture with fall from height and 17 had RTA. All the patients were operated by posterior approach using pedicle screws and rods. 28 patients were operated within first week. In 38 patients 4 screws were used and in 12 patients 8 screws were used with 2 rods. Effectiveness of the fixation was measured at 6 months post operatively in terms of relief of pain and improvement in mobility using Oswestry Disability Index, range of motion of spine using Schober Test/sign, reduction in deformity by measuring Cobb angle, local kyphosis angle (LKA), thoracolumbar angle, anterior and posterior vertebral heights (AVH & PVH), evidence of union using plain radiographs and by computer assisted measurement using "OSIRIS" software. The data was then analyzed using SPSS software version 13 and presented in the form of tables and charts.

**Results:** Pain and disability showed improvement, with mean 71.98% score preoperatively to 44.96 % mean at last visit  $t=6.67$  and  $p$  value 0.001. Mean range of motion increased 0.5-2 cm post operatively in all directions with  $p$  value 0.001. Mean kyphosis angle, Cobb angle and thoracolumbar angle improved post operatively. Anterior and posterior vertebral body heights increased post operatively and there was resultant decrease in anterior vertebral body compression. 96 % patients showed signs of post operative union on last visit and only 3 people died of unrelated causes till last visit.

**Conclusion:** Posterior spinal fixation with pedicle screws and rods is an effective surgical technique in maintaining stability of spine by improvement in pain and mobility, range of motion of spine, correction of deformity and bone union.

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