

The Effect of Short Segmental Taper Screw Internal Fixation in Patients with Thoracolumbar Spine Fracture and Dislocation

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Abstract: Objective: to explore the effect of short segment pedicle screw internal fixation in the treatment of thoracolumbar fracture dislocation. Methods: 108 cases of thoracolumbar vertebral fracture and dislocation were selected from the department of orthopedics of our hospital from March 2017 to April 2018. The average score is calculated from a random number table. The research group and the reference group. All groups had 54 patients. All patients were selected for routine treatment. Based on the above conditions, the team used short segment pedicle screw fixation. After the completion of treatment, the treatment status of each group of patients was taken to calculate the treatment status of each group of patients. Comprehensive curative effect of treatment, comparison of data between groups. Results: the therapeutic effects of each group were compared according to the results of this study. The overall therapeutic efficiency of the study group was 94.44%. The total effective rate of the control group was 72.22%. The results showed that the incidence of common clinical drug problems in the experimental group was much lower than that in the control group. The difference between the two groups was statistically significant ($P < 0.05$). Short-segment cone-pedicle screw internal fixation for the treatment of thoracolumbar spine fracture and dislocation can achieve the best therapeutic effect, shorten the treatment cycle, reduce the patient's pain, and has clinical value.

Thoracolumbar vertebral fracture dislocation is one of the most common types of injury in clinical orthopedics and one of the most stable types of spine injury. In traditional treatment conditions, even if the patient is cured or controlled, the disease is often aggravated by the disease. The injury of the anterior, middle and posterior parts of the spine has negative effects on the patient's life and future life. Therefore, it is necessary to pay attention to the scientific treatment of the disease and improve the curative effect. In this regard, our hospital mainly focused on the specific diagnosis and treatment of 108 cases of thoracolumbar vertebral fracture dislocation treated in orthopedics department from March 2017 to April 2018, and achieved certain curative effect. The specific analysis is as follows:

1. Materials and Methods

1.1 Clinical Data

Thirty-eight cases of thoracolumbar spine fracture and dislocation in our hospital from March 2017 to April 2018 were chosen. All the above selected patients were tested before admission, and the average was completed built on the random number table, ie the study group and the reference group. 54 patients in each group included 29 males and 25 females. The age range was 21-69 years. The median age was (45.4 ± 3.4) years, and the time from injury to medical treatment was 1 hour. In 10 days, the average time was (4.8 ± 1.2) days. The cause of dislocation included 15 cases of traffic accidents, 11 cases of accidental fall, 10 cases of bruises, and 18 other cases; the reference group included 27 males and 27 females. 24-64 years old, average age (45.2 ± 3.6) years old, from injury to medical treatment time is 2 hours to 8 days, the average time is (4.6 ± 1.1) days, dislocation causes include traffic accidents in 14 cases, accidental fall 12 For example, there were 11 cases of bruises and 17 other cases. Based on the above general data comparison, there was no significant

differences ($P>0.05$) in the routine data of the two groups of patients regardless of age, disease cycle, and sex ratio ($P>0.05$).

1.2 Research Methods

All patients received routine surgical treatment, such as spinal stabilization, hormone therapy, neurotrophic therapy, and strictly monitored their vital signs and disease progression. Under the above conditions, the research team combined with short segment pedicle screw fixation, i.e., all patients underwent general anesthesia.

At the same time, patients selected prone position, kept the abdomen vacant, and completed the vertebral surface under the C-arm. Positioning [1-2]. And around the lesion location, the general median approach incision operation is used to facilitate the complete display of the injured vertebral body, the adjacent upper and lower vertebral spinous processes, lamina and so on, and then complete the positioning of the injured vertebrae, in the injured vertebrae, adjacent vertebral bodies. At the top of the site, nail points are established. The angle between the line of defense and the sagittal plane of the nail is 0, and the angle between the planes of the transverse plane is 5 to 15. After that, the vertebral body is initiated on both sides and the needle is opened. After the above operations, the vertebral body can be recovered well through fluoroscopy, then decompression of the spinal canal can be carried out, and the spinal dura can be detected at the same time. The bone in the front can be reset, and the spinal cord can be pressed to check the dura mater pressure. Finally bone grafting is completed^[3-4].

1.3 Research Indicators

Evaluation indicators of this investigation mainly include the comprehensive treatment effect of all patients, and statistics are made according to the patient's case and clinical complications records. Comprehensive treatment efficiency is the primary indicator for determining comprehensive treatment efficacy. The formula is comprehensive treatment efficiency (%) = (number of the cured + number of getting better) / total number of people in each group \times 100%.

In addition, the patients' condition will be assessed by three levels of the investigation results, that is cured: the patients are basically cured and fully capable of self-care, and their thoracolumbar spine can move normally; getting better: the patients' condition are basically under control and can perform basic activities, The thoracolumbar spine can move within certain degree; ineffective: the patients is in poor treatment or their condition deteriorates (or even dies) and cannot recover their mobility.

1.4 Statistical Analysis

SPSS 17.0 data package was applied to complete the data analysis in this research, in which the measurement data are selected from the real original data plus or minus the average data. The specific performance is: ($\bar{x} \pm s$), the t test is passed through; and count data are represented by percentage (%). Through the χ^2 test, $P < 0.05$ in the comparison of the test results, it represents a statistically significant difference between the group data.

2. Results

The results of this research shows that the overall treatment efficiency of the research group was 94.44% while that of the control group was 72.22% according to the comparison of the treatment effects of each group. The incidence of common clinical drug problems in the research group was significantly lower than that of the control group ($P < 0.05$). The details are shown in the following table 1:

Table 1 Comparison of treatment effects between two groups of patients

	Group case number (n)	Cure (n)	Getting better (n)	Ineffective (n)	Comprehensive treatment efficiency (%)
Research Group	54	24	27	3	94.44
Control Group	54	18	21	15	72.22
X2 value	-	7.583	8.984	11.892	11.892
P value	-	0.034	0.021	0.013	0.031

3. Discussion

For conventional surgical treatment, the treatment of thoracolumbar spine fracture and dislocation is often more difficult, because the location of the affected part is mainly the buffer position of the connection between the chest and the lumbar spine. The force is focused after all so that spinal is easily fractured and dislocated once it is affected by external forces[5]. In addition, considering that spine fracture and dislocation belongs to a three-column spine injury, there is a great uncertainty in the condition. Therefore, the treatment needs timely and appropriate fixation treatment and reconstructs spinal stability through surgery. Compared with general surgical treatment, the main advantage of short-segment con-pedicle screw fixation lies in the simple treatment flow and obvious treatment effects. After treatment, the stability of the patients' thoracolumbar spine can be reconstructed and their condition can be completely cured without obvious postoperative complications, which has been widely admired and applied in clinical practice in recent years[6].

The results of this research shows that the overall treatment efficiency of the research group with conventional treatment combined with short segmental taper screw fixation is 94.44% while that of the treatment group with only conventional treatment is 72.22% according to the comparison of the treatment effects of each group. The incidence of common clinical drug use problems in the research group was significantly lower than that of the control group. A significant difference appears in the group data, which is statistically significant ($P < 0.05$). Thus, short-segment con-pedicle screw fixation in the treatment of thoracolumbar spine fracture and dislocation can achieve the best therapeutic effect, shorten the treatment cycle, and reduce the patients' pain, which is worthy of clinical promotion and application.

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