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Effect of Locking Compression Plate on the Treatment of Limb Fracture and the Effect of Operative Success Rate and Postoperative Recovery Time

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ABSTRACT

Objective: To analyze the effect of locking compression plate on the success rate of operation and the time of postoperative recovery. Methods: 120 patients with limb fractures from March 2018 to March 2020 were randomly divided into control group (60 cases) and observation group (60 cases). The control group was treated with plate screw internal fixation, The observation group used locking compression plate internal fixation, Compare the effect of treatment, the success rate of operation and the time of postoperative recovery. Results: compared the effective rate of the two groups, the observation group (93.33%) was significantly higher than the control group (75.00%). Compared with the two groups, the success rate of operation and the time of postoperative recovery, the observed composition power was higher than that of the control group, and the postoperative recovery time was lower than that of the control group, P <0.05. Conclusion: The use of locking compression plate for the treatment of limb fracture can significantly increase the probability of successful operation, shorten the recovery time after operation, the overall curative effect is ideal, and the clinical popularization value is high.

1. Introduction

In the type of fracture, the proportion of limb fracture is very high, which belongs to a kind of high energy trauma. With the development of industry and transportation industry, the incidence of fracture has increased significantly, so the treatment method has been widely concerned. Limb fracture to the patient’s injury is large, if the treatment is not timely will lead to serious sequelae, affecting normal work and life, so scientific treatment is very critical. The traditional treatment of limb fractures mainly uses traction, plaster fixation and other ways, but it takes a long time to recover after surgery, long time unable to move autonomously prone to joint stiffness problems, affect joint function, easy to appear sequelae. With the continuous progress of medical technology, locking compression plate has been popularized in clinical practice, which can effectively avoid bone destruction and surrounding soft tissue injury, elastic fixation of fractures, promote fracture healing and regeneration, and can make patients receive functional recovery training as soon as possible, and reduce the impact on limb function [1]. In this paper, the effect of locking compression plate on the treatment of limb fractures and the effect of operation success
rate and postoperative recovery time were analyzed.

2. Information and Methodology

2.1 General Information

From March 2018 to March 2020, 120 patients with limb fractures were randomly divided into control group (60 cases) and observation group (60 cases). The ratio of men to women in the control group was 34:26, Age 21-69, Average age (45.12±12.45), Fracture time h-5d, 6 Mean fracture time (2.14±1.24 d.), Of 42 open fractures, Closed fracture in 18 cases; The ratio of men to women in the observation group was 23:14, In the 20-65 age range, Average age (42.50±0.54) years, Fracture time h-5d, 8 Mean fracture time (2.21±1.21 d.), Of 45 open fractures, 15 cases of closed fracture. Compared with the two groups, there was no significant difference (P >0.05).

2.2 Methodology

Control group: plate screw internal fixation: epidural anesthesia, according to the actual situation of the patient selected proximal and distal for 2-3 cm incision, separation of deep fascia and subcutaneous periosteal soft tissue, create tissue tunnel, after the reduction of the fracture site, in the bone surface into the plate for fixation, X line fluoroscopy, adjust the plate position, use 1 screw to fix the proximal and distal end of the fracture position, after good reduction in the proximal and distal end of the fracture area into 2-4 single cortical locking screws, suture incision, complete the operation.

Observation group: locked compression plate internal fixation: use epidural anesthesia, X line fluoroscopy, determine the length of the affected limb, select the appropriate plate, plastic treatment, soft tissue protection. After the fracture position is reduced, the plate is placed in the periosteum and soft tissue, adjusted to the appropriate position, the locking screw is implanted, the skin is sutured after the reduction and fixation is completed, and the continuous negative pressure drainage is carried out.

The two groups were treated with anti-infection and pain relief after operation, and the dressing was replaced in time to ensure the incision was clean and dry.

2.3 Observation Indicators

Treatment effect: the treatment effect was evaluated by Johner-wruh evaluation subscale, such as ankle joint, knee joint movement flexible, gait is excellent; after treatment ankle joint, knee joint movement degree is more than 75°, 80°, daily walking gait is not abnormal, judged as good; if ankle joint, knee joint movement degree between 50-75°, judged as medium; if the patient did not meet the above indicators judged as poor.

Success rate of operation, recovery time after operation: collect the successful reduction and the number of failure cases, calculate the incidence. The postoperative recovery time of the patients was followed up.

2.4 Statistical Treatment

The data of this study are processed by statistical software SPSS20.0, the measurement data is expressed by (±s), the t is tested, and the counting data is \( \chi^2 \) indicated, \( P \) test, \( P <0.05 \) was statistically significant.

3. fruit

3.1 Treatment Effectiveness Analysis

Compared with the effective rate of the two groups, the observation group (93.33%) was significantly higher than the control group (75.00%), \( P <0.05 \), as detailed in Table 1.

Table 1. Analysis of therapeutic effects [n (%)]

<table>
<thead>
<tr>
<th>Group</th>
<th>Excellent</th>
<th>Good</th>
<th>Medium</th>
<th>Difference</th>
<th>Effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group (n=60)</td>
<td>23</td>
<td>12</td>
<td>10</td>
<td>15</td>
<td>45(75.00)</td>
</tr>
<tr>
<td>Observation Group (n=60)</td>
<td>28</td>
<td>16</td>
<td>12</td>
<td>4</td>
<td>56(93.33)</td>
</tr>
<tr>
<td>( \chi^2 )</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>7.566</td>
</tr>
<tr>
<td>( P )</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.006</td>
</tr>
</tbody>
</table>

3.2 Analysis of Operative Success Rate and Postoperative Recovery Time

Comparing the operation success rate and postoperative recovery time of the two groups, the observed composition power was higher than that of the control group, and the postoperative recovery time was lower than that of the control group, \( P <0.05 \), as detailed in Table 2.

Table 2. Analysis of success rate and recovery time after operation

<table>
<thead>
<tr>
<th>Group</th>
<th>Successful surgery (n)</th>
<th>Failure of operation (n)</th>
<th>Success rate(%)</th>
<th>Postoperative recovery time (w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group (n=60)</td>
<td>52</td>
<td>8</td>
<td>86.67</td>
<td>29.23±4.21</td>
</tr>
<tr>
<td>Observation Group (n=60)</td>
<td>58</td>
<td>2</td>
<td>96.67</td>
<td>22.13±3.53</td>
</tr>
<tr>
<td>( \chi^2 )</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>10.010</td>
</tr>
<tr>
<td>( P )</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.006</td>
</tr>
</tbody>
</table>

4. Discussion

At present, the incidence of fracture is high in clinic,
among which limb fracture is relatively high, which is highly valued in clinic. Once a limb fracture occurs, it affects the bone of the fracture site and breaks the bone. It also adversely affects the soft tissue and blood flow around the fracture area\(^3\).

As can be seen from the above table 1-2 analysis, the effective rate of the two groups was compared, the observation group (93.33\%) was significantly higher than the control group (75.00\%). compared with the two groups, the success rate of operation and the time of postoperative recovery, the observed composition power was higher than that of the control group, and the postoperative recovery time was lower than that of the control group, \(P < 0.05\).

Causes: The traditional treatment uses the plate screw internal fixation wound is bigger, for the fracture loose patient easy to have the fixation failure situation, needs to carry on the secondary fixation, for the comminuted fracture is not easy to fix, increases the treatment burden, may cause many kinds of complications; The locking compression plate can effectively avoid the fixation not in place, presents a unique angle with stability, the whole fixation is better, for the comminuted fracture, osteoporosis patient also can carry on the good fixation, the screw is good, may meet the various fracture internal fixation demand.Locked compression plate can better fit with bone, internal fixation is not easy to loose, so the probability of successful surgery is higher, and the injury to the body is small, can be quickly fused to the orthopaedic end, for long bone distal fracture treatment effect is also more ideal; Locking compression plate can reduce the problem of screw loosening after operation, and the effect of internal fixation is very ideal, it will not cause damage to periosteum and soft tissue, at the same time, it can protect the blood supply of fracture position, so it can support patients to carry out early rehabilitation training to promote the early recovery of joint function, prevent the limb function restriction caused by long time fixation can not move, so the therapeutic effect is significantly improved since clinical development, the probability of successful operation is also significantly reduced, and the patient’s postoperative recovery time is shortened\(^3\).

To sum up, the use of locking compression plate for the treatment of limb fracture patients can significantly improve the probability of successful surgery, shorten the recovery time after surgery, the overall curative effect is ideal, and the clinical popularization value is high.

References

