

TFN With Cervical Screw or Helical Blade: Is There any Difference? A Prospective, Randomized Trial Comparing Both Implants

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Purpose: Our objective was to analyze the outcomes of patients with unstable intertrochanteric fractures treated with intramedullary nails using a cervical screw or helical blade.

Methods: Between December 2017 and December 2018, all the patients admitted in our clinic with an unstable intertrochanteric fracture were enrolled. Inclusion criteria were: more than 70 years old, unstable pattern (OTA/AO 31A), and low-energy trauma. Patients were treated with the same implant (TFNA, Synthes) and randomized to group 1 (cervical screw) or group 2 (helical blade). Forty patients were included, 20 in group 1 and 20 in group 2. All patients were operated within 36 hours from admission. Postoperatively, all the patients were allowed to fully weight-bear with a 4-point walker as tolerated. In our patient clinic, radiographs were taken at 30, 60, 90, 180, and 360 days. We evaluated quality of reduction as anatomic, minimally displaced (displacement <3 mm, 5°-10° varus/valgus or anteversion/retroversion) or displaced (displacement >3 mm or >10° varus/valgus or anteversion/retroversion), location of the cervical implant in the neck and femoral head, and tip-apex distance (TAD)

Results: 36 patients were females and 4 males. Mean time of follow-up was 9 months (range, 6-12 months). Mean age was 77.4 years. All fractures healed in 3 months. In the radiographs, we observed anatomical reduction in 32 patients (80%). The other 8 presented a reduction with minimal displacement (20%); 5 were from group 1 (screw) and 3 from group 2 (blade). In 33 cases the cervical screw or helical blade was located in zone 8 in the AP radiograph and in zone 5 in the lateral view, according to Cleveland distribution. In 6 cases the cervical implant was in zone 8 in the AP and in zone 6 in the lateral view. In 1 case, the cervical implant was located in zone 5 in the AP and zone 4 in the lateral view (group 2). TAD was less than 25 mm in all cases. There were no patients with cut-out or cut-through.

Conclusion: Despite new developments in implant design, lost of reduction as cut-out represents 6% to 14% of the complications in osteoporotic patients. The advantage of a blade is the compaction of the cancellous bone in the femur neck and head, which achieves excellent fixation in osteoporotic bone. We did not see differences between both groups in terms of loss of reduction, healing time, or other complications. Both groups had similar outcome in fracture reduction, screw/blade position, and TAD, so they were well matched after surgery, and the possibility of factors influencing the results were minimal. We conclude that the most important conditions to avoid cut-out are the anatomical reduction of the fracture and the correct placement of the cervical implant in the femoral neck irrespective of the implant used. We did not find a clear difference for the use of screw or blade for treatment of unstable intertrochanteric fractures; the choice of implant depends on surgeon preference.