CORR Insights™: Intramedullary Nails Result in More Reoperations Than Sliding Hip Screws in Two-part Intertrochanteric Fractures

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Abstract This CORR Insights™ is a commentary on the article “Intramedullary Nails Result in More Reoperations Than Sliding Hip Screws in Two-part Intertrochanteric Fractures” by Matre et al. available at DOI-[10.1007/s11999-012-2728-2](https://doi.org/10.1007/s11999-012-2728-2).

Where Are We Now?

The comparison of sliding hip screws to cephalomedullary nails for intertrochanteric fractures is not a new topic. When initially introduced approximately 25 years ago, the cephalomedullary devices were thought to be biomechanically superior to sliding hip screws, avoiding the complications of loss of fixation while maintaining the reduction of more comminuted fracture patterns. Because of percutaneous technique, it also was thought that this device would provide less operative time and less blood loss when compared with sliding hip screws. Because hip

fractures are so common, comparison of the cephalomedullary device to sliding hip screw devices is important.

Multiple studies have provided somewhat conflicting data [1–3, 5–12]. When all fracture patterns are considered, however, there does not appear to be any significant difference in blood loss, transfusion requirements, or operative times [1–3, 5–12]. Postoperative complications, such as infection and thromboembolic phenomena, also are similar for the two groups [1–3, 5–12]. The presence of nonunions and fracture healing appear to be similar with the two types of implants as well [1–3, 5–12]. Likewise, there does not appear to be any differences between the two methods regarding leg-length discrepancy, external rotation, or varus femoral neck deformity (although few studies look at these outcomes) [1–3, 7, 11, 12]. Operative fracture of the femur has been significantly worse when using the shorter cephalomedullary device, necessitating reoperation or changing the implant to a longer device [1–3, 5–12]. This last finding was disputed by Bhandari et al. [4], who performed a meta-analysis of more recent studies. When including all studies, or older studies, the operative femur fracture was significantly worse with the cephalomedullary nail group. The use of a long nail spanning the femoral shaft, however, minimizes this complication as seen consistently with studies using the short cephalomedullary device.

Indications for using a cephalomedullary device, then, are less clear. Patients with reverse obliquity fractures, lateral wall fractures, or extremely comminuted fractures (such as the OTA 31 A2.2 or A2.3) seem to benefit from the different biomechanics of the cephalomedullary device. Second, the use of long nails minimizes the complication of fractures distal to the tip of the small nail.

This study by Matre et al. is a retrospective review of the Norwegian Hip Fracture Registry, comparing two-part or

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OTA type A1 standard obliquity fractures treated with either a cephalomedullary nail or sliding hip screw in 7643 operations (6355 sliding hip screw and 1288 cephalomedullary nail). The strengths of this study are the large patient numbers in the registry, the use of one fracture pattern for comparison of the two implants, and the similar characteristics of the age groups of the patients. The authors' main findings were that simple two-part fractures could be treated equally well with a sliding hip screw, but with less expense and fewer complications.

Matre et al. noted the most significant complications were hardware pain, fracture around the implant, and "other reasons." Loss of fixation and nonunion occurred to a similar degree in both groups. Not all complications listed in this study could be considered of equal magnitude. Removal of hardware for pain differs from other complications such as loss of fixation or infection. Short nails were used with 96% of the patients who had a cephalomedullary device, thus increasing the possibility of fracture around the implant. The main weakness of this study is that it does not compare the devices with the less stable fracture patterns, which is the primary indication for using a cephalomedullary device [1–12].

Where Do We Need to Go?

The number of intertrochanteric hip fractures is expected to increase during the next decades as the population ages. How best to treat hip fractures in general, not just intertrochanteric fractures, will be important considerations for the future. Standardization of care with perioperative protocols for nursing, anesthesia, and surgeons do seem to improve outcomes. To provide better patient care, comparison of the cephalomedullary device to sliding hip screw devices is important. Use of one device allows for standardization of perioperative protocols, fewer implants, and decreased operative team training. This has implications for improved patient care and decreased overall costs.

How Do We Get There?

Further developments to prevent the complications of hardware (or bone) failure, leading to loss of reduction, should be a priority. Implants that prevent collapse of more comminuted fractures, perhaps along with bone substitute,

should be future considerations for the more difficult fractures. The use of registries with standardized data entry may help us obtain sufficient numbers to allow comparisons to be made.

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