Occurrence of Periprosthetic Fractures after Hip Hemiarthroplasty: A Review of 4,083 Operations from a Single Center

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INTRODUCTION:
The surgical management of displaced intracapsular fractures commonly involves hemiarthroplasty. This can either be cemented or uncemented. Previous evidence has disputed the pros and cons of both modalities and the incidence of periprosthetic fractures.
METHODS:
We conducted a retrospective review of our cohort of neck of femur fractures performed at our hospital over the last 34 years examining whether certain cemented or uncemented stems were associated with an increased incidence of periprosthetic fractures. All surviving patients had a minimum one-year follow up. Also included were details of any patient later readmitted with a periprosthetic fracture. Our hospital is the only one in the region managing these patients.
RESULTS:
A total of 2,362 cemented and 1,721 uncemented hemiarthroplasty were retrospectively reviewed. The cemented cohort consisted of 1,036 CPT (Collarless polished taper, Zimmer), 913 ETS (Exeter trauma stem), and 413 Thompson stems. The uncemented cohort consisted of 1483 Austin Moores, 226 Furlongs, and 12 Avenirs.
The incidence of periprosthetic fracture for cemented CPT, ETS, and Thompson stems was 1.6% (17/1036)), 1% (9/913), and 0.2% (1/413) respectively. CPT had a statistically higher periprosthetic fracture rate compared to Thompson cemented stems (1.6% vs. 0.2%, p= 0.03). In the uncemented group, the incidence of periprosthetic fracture for Austin Moore, Furlong, and Avenir was 1.8% (26/1483), 2.7% (6/226), and 8.3% (1/12) respectively.
When comparing the best performing cemented (Thompson) versus best performing uncemented stem (Austin Moore), cemented stems had a lower incidence of periprosthetic fractures (0.2% versus 1.8%) which was statistically significant (p= 0.01).
DISCUSSION AND CONCLUSION:
Our retrospective study of 4,083 neck of femur fractures surgically managed with hemiarthroplasty surgery noted an increased risk of periprosthetic fractures using uncemented implants. The significant increased risk of periprosthetic fractures using CPT stem compared to other cemented stems warrants further investigation and caution using double tapered polished stems for neck of femur fractures.