PRESENTATION 3

Endoprosthetic Reconstruction & Intramedullary Nailing for Pathological Fractures of the Proximal Femur: A Systematic Review and Meta-Analysis of Survival and Complications

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Background

Up to 50% of new cases of cancer diagnosed eventually metastasise to bone. The femur and humerus are common sites for metastases to the bone. Pathological fractures of the femur can lead to impaired mobility, severe pain, morbidity and reduced quality of life. This review compares survival and complication rate following endoprosthetic reconstruction (EPR) and intramedullary nailing (IMN) for impending and complete pathological fractures of the proximal femur associated with metastatic bone disease.

Methods

A systematic review of the literature was performed searching Medline, Cochrane, Web of Science and EMBASE databases for articles published within the last 40 years reporting outcomes for surgical treatment of metastatic lesions in the proximal femur. Twenty-eight studies with 2631 patients treated for 2657 lesions were included. Meta-analysis was performed to compare pooled estimates and 95% confidence intervals for IMN and EPR.

Results

EPR provides a greater 1-year survival rate than IMN (39% vs 33.2%, $p > 0.05$). Systemic complications were lower in patients treated with EPR than IMN (3% vs 7.9%). Rate of tumour progression was lower in EPR than IMN (0.9% vs 2%). Patients treated with EPR were less likely to experience implant failure or dislocation than the IMN group (3.6% vs 5.8%). Pooled deep infection rate was higher in patients treated with EPR than in the IMN group. Significant heterogeneity ($p < 0.05$) was present in studies reporting on both treatment modalities.

Key messages

Survival, complication and reoperation rates are comparable between EPR and IMN. EPR provides a greater 1-year survival rate than IMN. EPR also lasts the lifetime of the patient and provides a greater protection against local recurrence. Risk of systemic complications is lower in patients treated with EPR, but they are more susceptible to deep infections than patients treated with IMN.

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