

11016: Risk factors for mortality after pathologic fracture secondary to metastatic cancer

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Background: The skeleton is the third most common site of cancer metastases. Approximately 10% of patients with bone metastases will go on to develop a pathologic fracture, which is associated with significant morbidity and mortality.

Purpose: Identify various risk factors for same-admission mortality after pathologic fractures secondary to metastatic cancer using a nationally representative database.

Methods: The Nationwide Inpatient Sample (NIS) database was queried for patients hospitalized with a diagnosis of a primary cancer known to be high risk for skeletal metastasis (breast, lung, thyroid, prostate, and renal). Patients who had a diagnosis of pathologic fracture were included and classified based on location of the fracture (spine, upper extremity, lower extremity). Univariate and multivariate analyses were performed to determine risk factors associated with mortality after fracture.

Results: A total of 288,352 patients were identified. The spine was the most common site of pathologic fracture (67.2%) followed by the lower extremity (25.5%) and upper extremity (8.8%). Patients treated nonoperatively for their fracture were more likely to die than those treated surgically ($P < 0.001$). Patient factors significantly associated ($p < 0.001$) with increased mortality included: male gender, non-White race, non-Medicare insurance, and comorbidities of congestive heart failure (OR = 1.39), chronic pulmonary disease (OR = 1.24), liver disease (OR = 2.27), and preoperative renal failure (OR = 6.23). Postoperative complications, including surgical site infection (OR = 1.45), acute myocardial infarction (OR = 2.38), pneumonia (OR = 3.00), and pulmonary embolism (OR = 2.50) were also associated ($p < 0.001$) with increased mortality.

Conclusion: Pathologic fractures, seen most commonly in the spine, followed by lower extremity and upper extremity, are a devastating consequence of metastatic bone disease and contribute significantly to morbidity and mortality. Numerous patient and postoperative factors are associated with increased mortality. This data is useful for counseling patients with skeletal metastatic disease, and should be taken into consideration when conducting routine skeletal surveillance in patients with metastatic cancer. Prevention of pathologic fractures may impact patient mortality.