Study outlines risk factors for poor outcome, mortality following hip fracture

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A new study, presented today at the 2013 Annual Meeting of the American Academy of Orthopaedic Surgeons (AAOS), identifies predictors of complications and mortality following a hip fracture, including dialysis, cardiac disease, diabetes, and a longer time before surgery – the only modifiable risk factor when patients are hospitalized.

Each year, more than 340,000 Americans are hospitalized for hip fractures. According to AAOS data, 69 percent of hip fracture patients are female and 46 percent are between the ages of 65 and 84. Many hip fracture patients suffer complications with life-altering consequences. The estimated mortality rate within one year of a hip fracture ranges from 12 to 33 percent.

In the study, researchers used data from the 2008 National Sample Program (NSP) of the National Trauma Data Bank (NTBD) to identify a representative sample of 44,419 hip fractures. Among the specifics:

- The average patient age was age 72.7.
- Sixty-two percent of patients were female.
- Patient demographics, medical comorbidities, injury-specific factors and outcomes were recorded and a national estimate model developed for analysis.

Primary outcomes included mortality and the development of complications (4.5 percent and 12.5 percent, respectively). Seventeen

percent of patients who sustained at least one complication died. Secondary measures consisted of the development of specific complications such as pulmonary/cardiac complications, venous thromboembolic disease and infection.

Hypertension and diabetes were the most common medical comorbidities among patients. Dialysis, presenting in shock, cardiac disease, male sex and a high Injury Severity Score (ISS) were significant predictors of mortality. Dialysis, shock, obesity, cardiac disease, diabetes and a greater time to surgery significantly influenced the risk of developing one or more post-operative complications. Obesity, femoral neck (the uppermost section of the thigh bone) fracture, cardiac disease and diabetes significantly increased the risk of developing major complications. The presence of shock following injury was the most important predictor of both cardiac and venous thromboembolic disease complications with an odds ratio exceeding 10 for the development of cardiac complications.

"Most of the predictors of complications and mortality are non-modifiable," including the presence of significant cardiac/respiratory disease, diabetes, dependence on dialysis and presentation to the hospital in shock, said Philip J. Belmont, Jr., MD, an orthopaedic surgeon at the William Beaumont Army Medical Center in El Paso, Texas, and the lead author of the study.

"Reduced time to surgical intervention appears to be the single greatest factor with which a surgeon might influence the risk of mortality or complications," said Dr. Belmont. A previous study has shown a 41 percent increase in mortality if surgery is delayed 48 hours or more. The majority of patients are taken into surgery within 24 hours.

In older hip fracture patients, the pre-operative "work-up," and/or the correction of major clinical abnormalities – important and frequent

considerations – can sometimes take more than one day, said Dr. Belmont. The potential benefit of correcting major clinical abnormalities prior to hip fracture surgery can influence survival. This process often can be expedited when the orthopaedic surgeon works directly with the internal medicine physician or hospitalist who is helping to manage the patient.

"With the rising incidence of hip fractures, patient-treatment solutions directed toward this modifiable factor may reduce complications, and potentially, mortality," said Dr. Belmont.

Provided by American Academy of Orthopaedic Surgeons