Do gender and ethnicity affect hip fracture outcomes?

By Jennie McKee

Hip fractures are a major public health concern, affecting more than 340,000 patients in the United States each year. Because these fractures are primarily associated with osteoporosis and the elderly, they have been studied much more extensively in white women than in men or in members of racial or ethnic minorities.

According to Robert Sterling, MD, of the University of Maryland Medical Center, evaluating the ways in which factors such as fracture type, implants used, and surgical technique affect outcomes is important. But he also believes that studies are needed on patient characteristics—including sex, gender, race, and ethnicity—and their effects on functional outcomes and mortality rates. Dr. Sterling shared his thinking at the 2010 AAOS/Orthopaedic Research Society/American Bone and Joint Surgeons Musculoskeletal Healthcare Disparities Research Symposium in May.

Age, co-morbidities, and race

“We know that men account for 25 percent to 30 percent of all hip fracture patients, but the incidence of hip fracture by race/ethnicity is more difficult to characterize due to differences in population studies,” said Dr. Sterling (Fig 1).

A consistent finding in studies performed around the world, he said, is that male hip fracture patients are 2 to 4 years younger than female patients. Researchers have also found that men have different—and more—co-morbidities than women.

“Women have more arthritis and are diagnosed more often with osteoporosis,” he said. “Men have more pulmonary disease, cardiovascular disease, and a higher incidence of malignancy. In general, the functional status of men is slightly worse than that of women at the time of the fracture.”

Gender differences in hip fracture incidence are seen in both white and nonwhite populations, but at differing rates. Among whites in the United States, for example, the female-to-male ratio of hip fractures is 2.9 to 1, but it is just 1.5 to 1 among African Americans.

Mortality rates

The most studied outcome in hip fracture patients is mortality, which definitely seems to be affected by gender.

A 2003 study, for example, found that men were twice as likely as women to die within the first 2 years after hip fracture, with the highest interval difference occurring in the first year.

Infectious diseases, including septicaemia and pneumonia, accounted for the greatest increase in mortality in men in the study, noted Dr. Sterling. Confusion, pressure sores, congestive heart failure, and renal failure were also more common in men postoperatively.

The study’s results raise questions about whether the hip fracture itself, besides being a bone problem, changes some biochemical markers, said Dr. Sterling.

“Resistance to disease may be differentially affected in men,” he said. “In some of the studies that are going on now, researchers are evaluating factors such as tumor necrosis and bone and body metabolites to determine how they may be affecting overall survivorship.”

Functional outcomes

Researchers also need to focus more attention on functional outcomes after hip fracture, said Dr. Sterling.

Some existing data suggest that men have worse functional outcomes than women. According to Dr. Sterling, a study published in 2006 found that more men than women reported impairment in walking 10 feet 12 months after undergoing treatment for hip fracture. In addition, researchers found that men experienced more impairment in activities of daily living that involve the lower extremity.

Different ethnicities also have different functional results after hip fracture. A database review found that non-Hispanic blacks and Asians had an increased length of rehabilitation stay compared to non-Hispanic whites after adjusting for sociodemographic factors and case mix severity. Non-Hispanic blacks and Hispanics had significantly lower measures of functional independence at discharge and at follow-up compared to whites.

Baltimore Hip Studies

Dr. Sterling serves as co-investigator and orthopaedic consultant to the Baltimore Hip Studies (BHS) research team, a group in the Division of Epidemiology and Preventive Medicine at the University of Maryland School of Medicine that has been studying the consequences and outcomes of hip fractures since 1983. The Baltimore Hip Studies

Bottom Line

- Hip fracture outcomes have been studied extensively in white women, but few studies have included male patients or those representing racial and ethnic minorities.
- Overall, male hip fracture patients are younger, less healthy, and have significantly higher rates of postoperative mortality and morbidity than female patients.
- A study of 42,479 patients who received inpatient rehabilitation for hip fracture found that the Functional Independence Measure at discharge and at 3 to 6 months follow-up was significantly lower for non-Hispanic blacks and Hispanics compared with whites.