Trends in the Burden of Hip Fractures - What Does the Past Tell Us?

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Introduction:
Data suggests that while hip fractures may not be the most frequently diagnosed fracture in the U.S., it dominates the cost of fracture treatment (Burge 2007). Some countries/regions have reported steady (UK) or declining (Ontario, Canada) hip fracture rates, however the historical trends in the U.S. are unclear. The purpose of this study was to evaluate the historical trends in the hip fracture prevalence and treatment in the U.S.

Methods:
The Nationwide Inpatient Sample (NIS) from 1993-2011 was used to identify inpatient discharges with intracapsular and extracapsular hip fractures, using ICD-9-CM codes 733.14/820.0/820.1 and 820.2/820.3, respectively. The NIS represents the single largest all-payer inpatient database in the U.S. with about 8 million discharges from 1,045 hospitals in 46 states in 2011. Fracture treatment was stratified by closed treatment, internal fixation, hemiarthroplasty, and total hip arthroplasty (THA). The prevalence of hip fractures was stratified by age, gender, and race.

Results:
The overall number of hip fractures increased between 1993 and 1996 from 238,531 to 261,942, but has since declined to 218,635 in 2011. The trends were observed for both intracapsular and extracapsular fractures. The prevalence of hip fractures was 97.2 fractures per 100k persons in 1996 but declined to 71.1 fractures per 100k persons in 2009 and has since been relatively steady with 70.2 fractures per 100k persons in 2011 (Fig. 1). The decline in the prevalence was greatest in those aged 85 years and older, followed by the 80-84 and 75-79 years age groups. There was a slight decline in intracapsular fracture prevalence for males, but sharp decreases in prevalence for females for both intracapsular and extracapsular fractures (Fig. 2). The changes in the hip fracture prevalence were observed primarily for white patients, but not for the minority patient groups. Hemiarthroplasty has been used to treat 60% of intracapsular fractures, with no observable changes over time. In contrast, internal fixation is used in treating over 90% of extracapsular fractures.

Discussion:
Although the prevalence of hip fractures has declined substantially since the mid-1990s, the burden of hip fractures appears to have plateaued in the last few years of the study period. If these trends persist, it is expected that the growing number of the elderly population in the U.S. will drive an increase in the number of hip fractures.

Significance:
Some countries/regions have reported steady (UK) or declining (Ontario, Canada) hip fracture rates. Although the prevalence of hip fractures in the U.S. has declined substantially since the mid-1990s, the burden of hip fractures appears to have plateaued in the last few years.