Estimating the True Epidemiology of Traumatic Brain Injury in the United States

Comparison of Two National Databases

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Nothing to disclose.
Introduction

• Traumatic brain injury (TBI) is a leading cause of morbidity and mortality in the United States
• TBI incidence has historically been difficult to estimate given the variability of definitions and underreporting, especially of mild TBI
• The true incidence of TBI is still unknown
• Our objective here was to compare the epidemiology of TBI from the weighted estimates of two national databases
Methods

• The National Trauma Data Bank National Sample Program (NTDB NSP) was queried for 2007 and 2013
• These data were compared to the Centers for Disease Control and Prevention (CDC) report on TBI\(^1\)
• The CDC report was derived from the Healthcare Cost and Utilization Project National Inpatient and Emergency Department Samples (HCUP NIS and HCUP NEDS)
• Variables included population-based weighted estimates of TBI-related ED Visits, Hospitalizations, and Deaths

Results

TBI-related ED Visits:

- In the NTDB NSP, the rate of TBI-related ED Visits was 59/100,000 in 2007 and 62/100,000 in 2013
- In the CDC report, there were 534/100,000 in 2007 and 787/100,000 in 2013
- The CDC estimate was 805% higher in 2007 and 1169% higher in 2013
Results

TBI-related Hospitalizations:

- In the NTDB NSP, the rate of TBI-related Hospitalizations was 50/100,000 in 2007 and 55/100,000 in 2013
- In the CDC report, there were 88/100,000 in 2007 and 85/100,000 in 2013
- The CDC estimate was 76% higher in 2007 and 55% higher in 2013
Results

TBI-related Deaths:

- In the NTDB NSP, the rate of TBI-related Deaths was 5/100,000 in 2007 and 4/100,000 in 2013
- In the CDC report, there were 18/100,000 in 2007 and 18/100,000 in 2013
- The CDC estimate was 260% higher in 2007 and 325% higher in 2013
Conclusions

• These two national databases disagreed widely in their weighted estimates of TBI incidence

• These weighted incidences are each purported to approximate national estimates, but the CDC estimates were consistently higher than NTDB NSP estimates, by an average 448%

• More robust weighting and/or data sharing may aid in improving the accuracy of TBI estimates

• Given that policy decisions are made based on these estimates, there is a need for a more accurate estimate of the true national incidence of TBI