NIS and NSQIP Give Different Results in Hip Fracture Studies

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Purpose: National databases are being used with increasing frequency to conduct orthopaedic trauma research. The purpose of this study is to explore the inter-database reliability of two commonly used national databases, the Nationwide Inpatient Sample (NIS) and the National Surgical Quality Improvement Program (NSQIP), for use in orthopaedic trauma research.

Methods: A retrospective cohort study of patients undergoing operative stabilization of transcervical and intertrochanteric hip fractures during 2009-2011 was performed in NIS and NSQIP. Totals of 122,712 and 5021 patients were included from NIS and NSQIP, respectively.

Results: Demographics and hospital lengths of stay were similar between the databases. In terms of comorbidities, the prevalences of non-morbid obesity, coagulopathy, and anemia in NSQIP were more than twice those in NIS; the prevalence of peripheral vascular disease in NIS was more than twice that in NSQIP. Four other comorbidities had prevalences that were within a two-fold difference between the two databases.

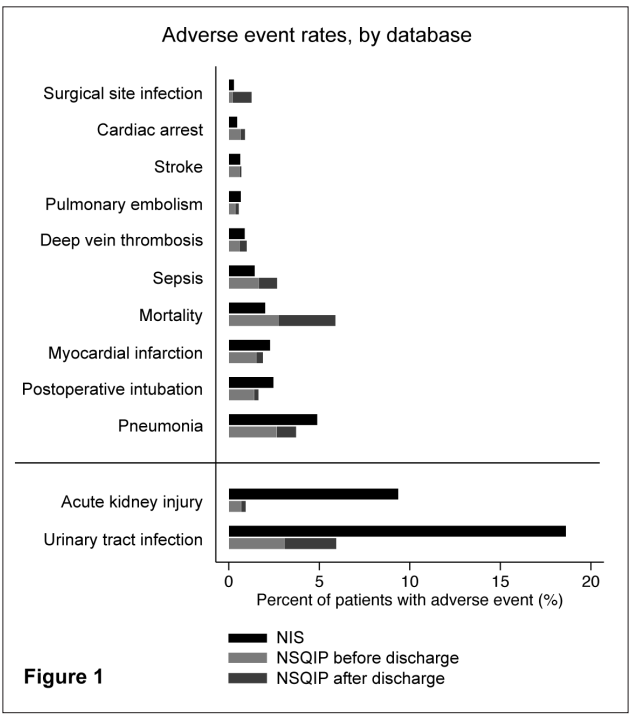

Figure 1

In terms of inpatient adverse events (Figure 1), the incidences of acute kidney injury and urinary tract infection in NIS were more than twice those in NSQIP (below the horizontal black line). Ten other inpatient adverse events had incidences that were within a twofold difference between the two databases (above the horizontal black line). NSQIP collects data both during the inpatient stay and after discharge until the 30th postoperative day. Because NIS does not collect data after patient discharge, comparison to NSQIP data demonstrates that NIS fails to capture over half of deaths and surgical site infections occurring in the first 30 postoperative days (Figure 1).

Conclusion: This study shows that two databases commonly used in orthopaedic trauma research can identify similar populations of operative patients, but may generate very different results for specific commonly studied comorbidities and adverse events.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.