

Introduction

Durotomy is a major spinal surgery complication, potentially leading to additional complications, longer hospitalization and increased costs. The reported incidence of this complication highly varies (1-17%), complicating comparisons to the relative safety of different surgical aspects. Theoretically, large-scale administrative databases, which include a high volume of procedures, are a useful tool for incidence estimations. However, previous studies suggest that complications are under-reported to these databases.

This study aims to evaluate the accuracy of durotomy incidence calculation, using several databases, by comparing it to the literature and to durotomy incidences directly associated with several bone-removal devices.

Methods

The database analysis was performed on the 2013 and 2014 National Inpatient Sample (NIS) databases and the 2010 National Hospital Discharge Survey (NHDS) database. Different assumptions were used in order to obtain several incidence estimations.

Durotomy incidences for three bone-removal devices, including the

Results

The incidence range calculated using the databases was 0.77%-3.86%. The calculated incidence for the high-speed drill was 3% and 0.5-1.85% for the other studied devices. Since bone-removal devices are only one of the possible causes of dural tears, the general incidence is expected to exceed any device-specific incidence. However, most of the database-derived incidences were lower than the incidence associated with the commonly used high speed drill. The highest estimation, 3.86%, was only slightly higher, suggesting a potential risk of under-reporting of this complication to the databases, also supported by the mostly higher incidences reported in the literature.

Conclusions

Administrative databases seem to show a lower than reasonable incidence of durotomy, suggesting a potential risk of under-reporting. A 2.5%-reduction of the incidence can be achieved by improving bone-removal devices.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the advantages and disadvantages of administrative databases. 2) Describe different approaches for durotomy incidence estimation. 3) Describe the potential problems associated with using administrative databases for complication incidence calculation.

References