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Definition of a mapping system for diagnostic and procedural categories from ICD9-CM codes in spine surgery. Application to national administrative health data in Italy between 2001 and 2019

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Introduction

The use of implant-related spine surgery has increased during the last decades because of improved technologies that allow for treating health issues previously untreated or treated by a conservative approach. This study aims to organise diagnostic categories and procedures classes under the ICD9-CM coding to observe and study spine surgery trends in Italy from 2001 to 2019. The data and information obtained can be crucial for establishing a national spine registry.

Material and Methods

Diagnostic categories and procedure classes were defined based on ICD9-CM codes related to spine surgery. The subset of records of interest from the Italian National Hospital Discharge Records database was extracted accordingly. Surgical volumes and population incidence rates were computed, and time trends were explored and analysed by the Cox-Stuart test.

Results

Eleven diagnostic categories and three procedure classes were defined on a set of ICD9-CM codes of interest. A total of 1.560.969 records reporting at least one diagnostic category and one procedure class were extracted from 209,818,966 admissions collected in Italy from 2001 to 2019. Most procedures did not involve implants (67%), while 25% were fusions and 8% non-fusions surgeries with some type of implant. The total number of spinal procedures per year significantly increased by 67%, from 58,369 to 97,636 (p<0.002). Population incidence rates increased from 101x100,000 inhabitants to 163x100,000 inhabitants. Procedures with implants increased in the analysed time window (p<0.01), while surgeries without implants remained stable.

Conclusion

This study provides a valuable mapping to identify spine surgery and related diagnoses from administrative data using ICD9-CM codes. The prominent increase in procedures with implants entails the need for a tool to monitor spinal devices in order to contribute to their traceability and to evaluate their long-term safety and performance.

Notes