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Introduction

There is no widely accepted neurosurgical complication classification system. We propose a novel neurosurgical complication classification system focusing on operative complications. We base our classification on our previously published paper on complications in endovascular neurosurgery. The system compiles the complication in five groups; indication errors, technical complications, judgement errors, critical events and procedural errors. (Figure 1)

Methods

We created our own neurosurgical complication classification system and prospectively analyzed and classified all our complications accordingly during the monthly morbidity and mortality conference at a single institution. The complications were captured and presented by neurosurgery chief residents. The classification was done by a single neurosurgery attending during the M&M conference. We compiled and analyzed our six-month results. We also performed a subgroup analysis of complications in neurosurgical subspecialties (general, spine, skull base, neuro-oncology, trauma, vascular, peripheral nerve and functional).

Results

There was a total of 64 neurosurgical complications during the six-month period; 55% of those were critical events and 28% were technical complications followed by Indication errors (9%), procedural (5%) and judgement errors (3%) (Figure 2). Within the neurosurgical subspecialties, vascular neurosurgery (28%) had the most complications followed by spine (25%), trauma (14%), neuro-oncology (14%), general neurosurgery (11%), peripheral nerve (1%) and functional neurosurgery (Figure 3).

Conclusions

In this study, we present a novel neurosurgical complication classification system. Our six-month analysis reveals that the most common subtype of complications were critical events followed by technical complications. The subspecialty with most complications were vascular neurosurgery followed by spine and neuro-trauma. Our study has limitations in terms of subjective complication reporting and subjective analysis, as well as difficulty in interpreting patient outcomes and implications of the complications on patient life. Despite all the challenges, complication classification is a vital step in

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Recognize common neurosurgical complication classification systems, 2) Able to discuss the importance of a neurosurgery specific complication classification system. 3) Able to understand and discuss importance of complication classification in terms of teaching, quality improvement and research.

Figure1

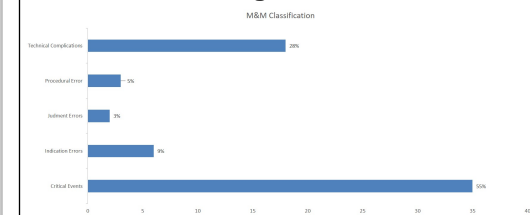Figure 1: Neurosurgical M&M Classification system.

Figure 2

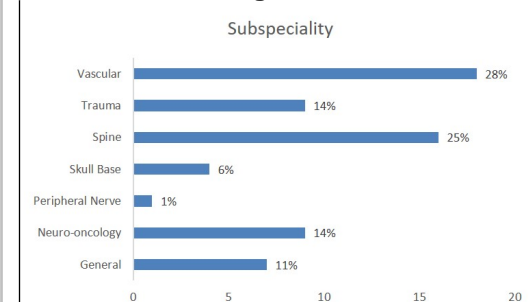Figure 2: 6 month M&M Classification results.

Figure 3

Figure 3: 6 month M&M count for neurosurgical subspecialties.

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