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Recommended Citation

Amjadi, Nazaneen and Desai, Sohum, "Descriptive Analysis of State and Federal Malpractice Litigation in the United States Related to Neuroendovascular Procedures" (2024). Research Symposium. 94. https://scholarworks.utrgv.edu/somrs/2023/posters/94

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Descriptive Analysis of State and Federal Malpractice Litigation in the United States Related to Neuroendovascular Procedures

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Introduction: Medical malpractice interests the medical community at large. While previous neurosurgical review articles have analyzed malpractice in the context of spinal surgery, few have reviewed malpractice data surrounding neurovascular procedures as a whole. Here we present a retrospective review of characteristics associated with malpractice litigation in cases involving neuroendovascular procedures in the United States.

Methods: Google Scholar Case Law, Casetext and Westlaw legal databases were searched for verdict and settlement reports pertaining to neurovascular procedures from 1984 to 2023. Data were collected regarding type of procedure, patient age and gender, defendant specialty, outcome, award, and alleged cause of malpractice. Search terms included "arteriovenous malformation," "brain aneurysm," "aneurysm coiling," "subarachnoid hemorrhage," "large vessel occlusion," "mechanical thrombectomy," "cerebral angiography," "carotid angioplasty and stenting," and "carotid stenosis." Initial search produced 212 cases, after which exclusion criteria were applied to eliminate duplicates and cases unrelated to neurovascular surgery/diagnoses or malpractice, yielding 27 cases total.

Results: The verdict favored the defendant physician(s) individually or represented by a healthcare entity in 8 of the 27 cases selected for analysis. Of 19 cases with verdicts in favor of the plaintiff, settlement values ranged from \$30,000 to \$15.65 million. In settlement cases, the most commonly involved procedures included AVM embolization followed by aneurysm coiling. Amongst cases where interventionist was the defendant, the most common specialty was neurointerventional radiology, followed by neurosurgery. Failure to diagnose was the most cited alleged malpractice cause (51.8%) amongst all cases, regardless of verdict.

Conclusions: Neurovascular emergencies are often addressed by a team of medical specialists including endovascular neurosurgeons, interventional neuroradiologists, and interventional neurologists. In this review, malpractice claims related to neurovascular emergencies most likely to result in plaintiff award were related to failure to diagnose, and interventional neuroradiologists appear to be at greater risk for alleged malpractice.