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Analysis of Reasons for Medical Malpractice Litigation due to Epidural Steroid Injection

Caleb Ting¹; Jacob Razzouk²; Davis Carter²; Omar Ramos³; Daniel Bohan⁴; Olumide Danisa⁵; Wayne Cheng^{6*}¹*School of Medicine, University of California, Riverside, Riverside, CA, USA.*²*School of Medicine, Loma Linda University, Loma Linda, CA, USA.*³*Twin Cities Spine Center, Minneapolis, MN, USA.*⁴*University of Southern California, Los Angeles, CA, USA.*⁵*Department of Orthopaedic Surgery, Loma Linda University, Loma Linda, CA, USA.*⁶*Division of Orthopaedic Surgery, Jerry L Pettis Memorial Veterans Hospital, Loma Linda, CA, USA.***Abstract**

Introduction: Administration of Epidural Steroid Injection (ESI) increased approximately 99% from 2000 to 2014. Analysis of reasons for malpractice claims due to ESI may provide insight into methods to improve patient care. This study analyzed malpractice claims due to ESI using two well-established legal databases.

Methods: We queried Westlaw and VerdictSearch databases between 2000 and 2021. Utilizing the terms “epidural injection” and “spine,” our queries yielded 4,567 results on WestLaw and 2,926 results on VerdictSearch. Cases were analyzed and categorized based on the grievance(s) levied by the plaintiff. Additional collected data included case date, verdict ruling, location of filed claim, payment or settlement amount, and sustained injuries.

Results: Upon review of 7,493 cases involving ESI, 19 cases were specifically due to ESI. Of the 19 cases, 2 resulted in plaintiff verdict and 5 resulted in settlement. Payment amounts for the plaintiff-ruled cases were \$327,171.40 and \$625,000, while settlement payments ranged from \$75,000 to \$600,000. Physicians across 5 specialties were sued: 14 in anesthesiology, 2 in diagnostic radiology, 1 in psychiatry, 1 in emergency medicine, and 1 in orthopedic surgery. Of the 14 anesthesiologists, 5 were fellowship trained in pain management. The psychiatrist was also fellowship trained in pain management. Twelve cases were decided through trial, 6 through settlement, and 1 through arbitration. Eight cervical, 6 thoracic, and 5 lumbar injections were performed. Plaintiffs alleged neurological deficit (n=12), permanent pain (n=2), perceived lack of adequate informed consent (n=3), non-standard needle use (n=1), and wrongful death (n=1) as reasons for filing a malpractice claim due to ESI.

Conclusions: The most common reason observed for litigation due to epidural injection was neurologic deficit. The cervical and thoracic spine were the most common regions involved in litigation due to ESI. Anesthesiology was the most common specialty associated with ESI malpractice claims.

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Correspondance: Wayne Cheng, Division of Orthopaedic Surgery, Jerry L Pettis Memorial Veterans Hospital, Loma Linda, 25805 Barton Road A106, Loma Linda, CA, USA. Tel: 909-991-9224; Email: md4spine@yahoo.com

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Introduction

Malpractice claims analysis is performed by many specialties to provide insight into patients' values, methods to improve quality of care, and reasons for litigation pertaining to specific treatments or procedures. Epidural steroid injection (ESI) is a common procedure with approximately 9 million ESIs performed annually [1]. Administration of ESI increased approximately 99% from 2000 to 2014 [2]. The Center for Medicare and Medicaid Services (CMS) broad provider qualifications allow for providers of several specialties to administer ESI [3]. Analyzing malpractice claims due to ESI may provide clinicians with a better understanding of reasons for malpractice due to ESI, and in turn, practices through which incidence of malpractice may be attenuated. The aim of our study was to analyze the reasons for malpractice claims due to epidural steroid injections through querying Westlaw Edge and VerdictSearch, two well-established legal databases widely used in medical research [4-9].

Methods

Data Source

Two large databases—Westlaw Edge (Thomson Reuters, Eagan, MN) and VerdictSearch (ALM Media Properties, LLC, New York, NY) were queried for medical malpractice claims filed between the years 2000 and 2022. VerdictSearch is a database compiled from United States federal and state courts across every state in the country and contains over 250,000 cases encompassing all categories of litigation excluding criminal law. In contrast, Westlaw Edge is a consolidation of over 40,000 smaller legal databases and contains both national and international case law. Both Westlaw and VerdictSearch are not necessarily all-inclusive, and cases settled outside of the judicial system or before formal registration may not be included [10]. However, these databases are still considered to be leading commercial providers for legal research within the professional legal community and have been extensively validated for legal research across several medical specialties [11-19].

Data Gathering

Utilizing the terms "epidural injection" and "spine," our queries yielded 4,567 results on WestLaw and 2,926 results on VerdictSearch. As Westlaw and VerdictSearch overlap in their case content, database results were screened to remove duplicates (Figure 1). Cases were reviewed and classified by two independent reviewers (CT & DB) based on the grievance(s) levied by the plaintiff. Discrepancies between reviewers were resolved by a third reviewer (WC). Case inclusion criteria was defined as a case filed between the years 2000 and 2022 involving the plaintiff's basis of litigation resting on a claim of medical malpractice due to ESI. Data collection was performed using Microsoft Excel version 16.58 (Microsoft Corporation, 2022, Redmond, WA, USA). Collected data was comprised of date of case hearing, plaintiff sex and age, defendant specialty, verdict ruling, location of filed claim, payment or settlement amount, and sustained injuries.

Results

Upon review of 7,493 cases involving ESI, nineteen cases were specifically due to ESI (Figure 1). Of the 19 cases, 2 resulted in plaintiff verdicts and 5 resulted in settlements. The payment

amounts for the plaintiff-ruled cases were \$327,171.40 and \$625,000, while settlement payments ranged from \$75,000 to \$600,000 with a mean of \$232,761. Physicians across 5 specialties were sued: 14 in anesthesiology, 2 in diagnostic radiology, 1 in physiatry, 1 in emergency medicine, and 1 in orthopedic surgery (Table 1). Of the 14 anesthesiologists, 5 were fellowship trained in pain management. The physiatrist was also fellowship trained in pain management.

Twelve cases were decided through trial, 6 through settlements, and 1 through arbitration. The mean plaintiff age was 53.3 ± 17.6 years. The mean lawsuit duration was 4.2 ± 1.1 years. The mean trial duration was 4.6 ± 3.3 days. With respect to spine region, 8 cervical, 6 thoracic, and 5 lumbar injections were performed. Plaintiffs alleged neurological deficits ($n=12$), permanent pain ($n=2$), perceived lack of sufficient informed consent ($n=3$), non-standard needle use ($n=1$), and wrongful death ($n=1$) as reasons for litigation due to ESI (Table 2). Case details of ESI malpractice claims resulting in plaintiff verdicts are reported in Table 3.

In 12 of the 19 cases due to ESI, plaintiffs asserted neurological deficits as the primary reason for filing a malpractice claim. These deficits were further classified as permanent loss of function of one or more extremities ($n = 9$), or paralysis in the form of paraplegia or quadriplegia ($n = 3$). Two of the three cases involving patient paralysis resulted in plaintiff verdicts. In both of these plaintiff-ruled cases, loss of consortium and future earnings were stipulated in the suit, while the third case involving paralysis did not include these clauses and resulted in a defendant verdict.

Table 1: Characteristics of malpractice cases due to ESI ($n=19$).

State location	n	Defendant specialty	n
California	5	Anesthesiology	14
New York	3	Radiology	2
Texas	3	Physiatry	1
Georgia	2	Emergency Medicine	1
Pennsylvania	2	Orthopedic Surgery	1
Illinois	1	Spinal Region	n
North Carolina	1	Cervical	8
Florida	1	Thoracic	6
Virginia	1	Lumbar	5
Plaintiff Sex	n		
Female	10		

Table 2: Reasons for litigation and lawsuit Outcomes.

Primary reason	Sub-reason	Total cases ($n=19$)	Plaintiff verdict ($n=7$)
Neurological Deficit	<i>Permanent Loss of Function</i>	9	3
	<i>Patient Paralyzed</i>	3	2
Permanent Pain		2	0
Perceived Lack of Adequate Informed Consent		3	2
Non-standard Needle Usage		1	0
Wrongful Death		1	0

Table 3: Case Details of ESI Malpractice Claims Resulting in Plaintiff Ruling.

Case number	Plaintiff sex	Plaintiff age	Reason for litigation	Defendant specialty	Payment amount	Location of ESI injection (Vertebral level)
Case 1	M	59	Patient Paralyzed	Radiology	\$425,000	Cervical (Undisclosed)
Case 2	M	72	Permanent Loss of Function	Radiology	\$600,000	Lumbar (L2-3)
Case 3	F	60	Permanent Loss of Function	Anesthesiology*	\$75,000	Cervical (C4-5)
Case 4	F	80	Inadequate Informed Consent	Anesthesiology	\$327,171.40	Thoracic (T5-6)
Case 5	F	30	Permanent Loss of Function	Anesthesiology	\$37,000	Lumbar (L5-S1)
Case 6	F	46	Inadequate Informed Consent	Anesthesiology*	\$600,000	Cervical (Undisclosed)
Case 7	M	60	Patient Paralyzed	Anesthesiology	\$625,000	Thoracic (Undisclosed)

*Anesthesiologist received fellowship training in Pain Management.

Table 4: Mean indemnity and settlement payments for ESI compared to other spinal procedures.

Procedure	Plaintiff verdict	Settlement
Epidural Steroid Injection	\$476,085	\$232,761
Laminectomy	\$4,530,277	\$1,193,146
Incidental Durotomy	\$2,757,298	N/A
Spinal Cord Stimulator	N/A	\$1,430,247
ACDF	\$9,700,000	\$2,060,000

well-documented reasons for malpractice litigation due to ESI. In turn, being mindful of these reasons may help to reduce such instances of malpractice and improve delivery of patient care.

Our analysis demonstrated a greater number of ESI malpractice claims involving the cervical and thoracic spine as compared to the lumbar spine. This finding is unusual considering that lumbar ESIs are performed four times more frequently than cervical and thoracic injections, combined [20]. Of the 7 cases resulting in plaintiff verdict, 5 cases involved the cervical and thoracic level. This may be attributed to the heightened risk of neurologic injury while performing ESI in this region. However, the current literature is sparse with respect to comparing the risk of adverse events depending on location of ESI. Schneider et al. found that altogether, complications of any kind due to ESI are incredibly rare and often limited to case reports [21]. Nevertheless, in so much as the provider acts in parallel with standard practice, our study suggests limited risk of malpractice litigation due to ESI. By adhering to standard of care guidelines and practicing competent procedural skills, it appears that malpractice due to ESI can be largely mitigated.

Though our study demonstrated mean indemnity payment and settlement amounts of \$476,085 and \$232,761, respectively, these figures are much smaller compared to the average figures of \$4,045,205 and \$1,930,278 observed in the Daniels et al. review of malpractice claims following spine surgery [13]. However, considering two of our reviewed plaintiff-verdict cases resulted in complete patient paralysis and the indemnity payments were only \$425,000 and \$625,000, it appears that claims involving ESI are less compared to those of more major procedures.

Two cases were filed due to alleged claims of permanent and unresolved pain. Both of these cases resulted in defendant verdicts as the provider was determined to be acting within the standard of care and adequate informed consent was documented. ESI is often administered as a series of three or four procedures per year, with patients stating a greater than 50% improvement after the first injection [22,23]. Subsequent injections may further alleviate pain, however, it may be prudent to inform patients that complete pain resolution may not be a reasonable expectation [24].

In one case, with a trial lasting eight days, the plaintiff alleged a breach in standard of care leading to neurological damage. The requested damages was set at two million dollars, far higher than

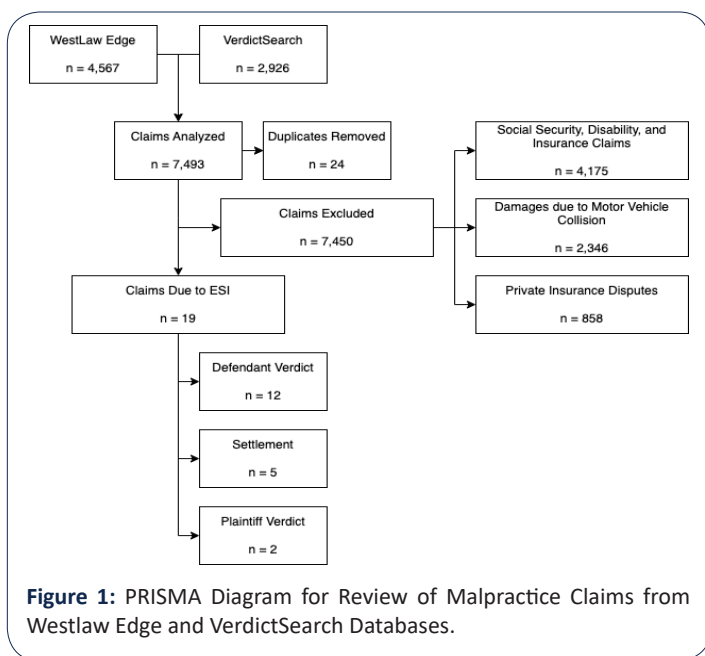


Figure 1: PRISMA Diagram for Review of Malpractice Claims from Westlaw Edge and VerdictSearch Databases.

Discussion

Malpractice claims analysis provides a unique perspective into patients’ values, the relative risk of litigation for a certain procedure or practice, and the contributing factors that lead to the development of a malpractice claim. This study aimed to characterize the reasons for malpractice claims due to ESI. Considering our study reviewed 7,493 cases from two of the largest databases used for medicolegal research and only found 19 cases directly pertaining to ESI, our findings suggest there is low risk of litigation associated with performing ESI. However, as our study found that in each case resulting in plaintiff ruling, there was clear documentation of a breach in care, our study suggests there are several

the average settlement payment from cases of a similar procedure. Further investigation during the trial found the plaintiff was observed playing sports without apparent difficulty. A defense verdict was reached within two hours with a unanimous jury. This case highlights that ESI-related malpractice cases are not immune from claims filed under pretense.

Anesthesiologists were the defendants in 14 of the 19 total cases as well as 5 of the 7 cases resulting in a plaintiff verdict. While these numbers comprise a majority of the cases, it is important to keep in mind that anesthesiologists perform seven times the amount of ESIs compared to all surgical specialties combined [25]. Furthermore, anesthesiologists perform more than twice the number of ESIs compared to physiatrists [26]. Anesthesiologists are among the top-ten specialists most likely to be sued [27]. Of the nineteen cases, 5 anesthesiologists and 1 physiatrist were also fellowship-trained in pain management. Future research is necessary to delineate if fellowship training in pain management or the number of years of experience performing ESI affects the risk of litigation in specialties that perform a greater frequency of ESI.

Limitations

This study has several limitations to note. While Westlaw and VerdictSearch are considered to be leading commercial providers for legal research within the professional legal as well as medical communities, neither database is all-inclusive [28,29]. It is likely that the cases reviewed in this study represent only a sample of all cases pertaining to ESI. Correspondingly, this study by no means makes any claims of all-inclusivity. It is estimated that 72% of malpractice claims are dropped, denied, or dismissed prior to trial or settlement [10]. As such, many malpractice claims will not be accessible in legal databases because they are not a part of formal judicial registration. Furthermore, not all court documents contained detailed patient medical histories, which limited the granularity of our data insight. Likewise, reports of medical history were only determined from case documents available in WestLaw or VerdictSearch and could not be further verified from medical records. Nevertheless, malpractice claims analysis offers insight into representative trends that may in turn improve quality of care and mitigate incidence of malpractice.

Conclusion

The most common reason observed for litigation due to epidural injection was neurologic deficit. The cervical and thoracic spine were the most common regions involved in litigation due to ESI. Anesthesiology was the most frequent specialty associated with ESI malpractice claims. Indemnity and settlement payment amounts for ESI claims are less compared to other spinal procedures.

Declarations

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Keywords: Epidural steroid injection; Malpractice; Litigation; Westlaw; VerdictSearch; Lawsuit.

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