Comparison of plaintiff and defendant expert witness qualification in malpractice litigation in neurological surgery

Clinical article

JEAN ANDERSON ELOY, M.D.,1–3 PETER F. SYDER, M.D.,1,4 ADAM J. FOLBE, M.D.,4 WILLIAM T. COWDRELL, M.D., PH.D.,5 AND JAMES K. LIU, M.D.1–3

Departments of 1Neurological Surgery and 2Otolaryngology–Head and Neck Surgery, and 3Center for Skull Base and Pituitary Surgery, Rutgers University, New Jersey Medical School, Newark, New Jersey; 4Department of Otolaryngology–Head and Neck Surgery, Wayne State University School of Medicine, Detroit, Michigan; and 5Department of Neurosurgery, University of Utah, Salt Lake City, Utah

Object. Expert witnesses provide a valuable societal service, interpreting complex pieces of evidence that may be misunderstood by nonmedical laypersons. The role of medical expert witness testimony and the potential professional repercussions, however, have been controversial in the medical community. The objective of the present analysis was to characterize the expertise of neurological surgeons testifying as expert witnesses in malpractice litigation.

Methods. Malpractice litigation involving expert testimony from neurological surgeons was obtained using the WestlawNext legal database. Data pertaining to duration of a surgeon’s practice, scholarly impact (as measured by the h index), practice setting, and the frequency with which a surgeon testifies were obtained for these expert witnesses from various online resources including the Scopus database, online medical facility and practice sites, and state medical licensing boards.

Results. Neurological surgeons testifying in 326 cases since 2008 averaged over 30 years of experience per person (34.5 years for plaintiff witnesses vs 33.2 for defense witnesses, p = 0.35). Defense witnesses had statistically higher scholarly impact than plaintiff witnesses (h index = 8.76 vs 5.46, p < 0.001). A greater proportion of defense witnesses were involved in academic practice (46.1% vs 24.4%, p < 0.001). Those testifying on behalf of plaintiffs were more likely to testify multiple times than those testifying on behalf of defendants (20.4% vs 12.6%).

Conclusions. Practitioners testifying for either side tend to be very experienced, while those testifying on behalf of defendants have significantly higher scholarly impact and are more likely to practice in an academic setting, potentially indicating a greater level of expertise. Experts for plaintiffs were more likely to testify multiple times. Surgical societies may need to clarify the necessary qualifications and ethical responsibilities of those who choose to testify.

Key Words • medical expert witness testimony • expert witness ethical obligations • medical malpractice • litigation • medicolegal • witness expertise • h index

Questions surrounding the reliability of medical expert testimony have endured for many years. One 19th century lawyer framed his closing remarks to a jury with the following words: “Gentleman of the jury, there are three kinds of liars—the common liar, the d—d liar, and the scientific expert.”19 In another trial from 1897 in which “an equal number of doctors testified exactly opposite to each other, and all with equal positiveness,” the presiding judge instructed jurors to “put all the expert testimony out of their minds, and pay no attention to it.” Presently, similar attitudes concerning medical expert testimony prevail in the medical and legal communities.18,20,25,26,44 A recent analysis found that proceedings featuring opposing medical expert testimony caused jurors to be skeptical of all testimony rather than to select a side they found to be more credible.30

Medical malpractice litigation and subsequent calls for tort reform have increased appreciably over the past 3 decades, with analyses estimating additional costs to our health care system as high as $10 billion annually from litigations.1,32,82,85 Given that neurological surgery has the highest proportion of physicians facing a malpractice claim each year (19.1%), a large proportion of these malpractice costs can be attributed to litigation in this field.24 Medical and nonmedical factors vary widely depending on the adverse events experienced, but the presence of a complication is not, in itself, sufficient to designate an injury as malpractice.54,60 Several factors that may need to

This article contains some figures that are displayed in color online but in black-and-white in the print edition.
be proven during legal proceedings include clear causation of a harmful injury by a defendant, the presence of a duty to act, and a breach of this duty (that is, deviating from the accepted standard of care).\(^\text{35}\)

The appropriate level of expertise sufficient for testimony is certainly a contentious topic. In the landmark *Daubert versus Merrell Dow Pharmaceuticals* ruling, the US Supreme Court set benchmarks for determining whether an expert is qualified to provide testimony.\(^\text{12,18,22,50,64}\) Used increasingly by the majority of states, this ruling allows judges to play an important role as a “gatekeeper” and prevent inadequately qualified individuals from serving as expert witnesses.

There have been few studies characterizing proficiency of medical expert witness testimony. A recent investigation of expert witness qualification among otolaryngologists providing medical testimony in malpractice litigation since 2008 found that plaintiff experts were not as experienced, had lower scholarly impact, and were less likely to be involved in academic practice.\(^\text{39}\) Although measuring an individual’s true expertise may be impossible, these objective and publicly available factors can provide a point of comparison of the relative qualifications of expert witnesses. The objectives of this current analysis were to characterize and compare the qualifications of neurological surgeons testifying on behalf of plaintiffs and defendants. Similar to trends in neurological surgery, case law in malpractice litigation is dynamic and constantly evolving as a result of technological innovations and changes to the law. Therefore, we had a particular interest in examining the most recent available cases to best characterize the current medicolegal environment as it relates to medical expert testimony.

**Methods**

Jury verdict and settlement reports from 2008 through 2012 were searched with the advanced search function on the legal database WestlawNext (Thomson Reuters), using the terms “medical malpractice” and “neurosurgeon” OR “neurological surgeon.” This database has been proven to be of value in a previous analysis of otolaryngologist expert witnesses,\(^\text{18}\) as well as a variety of other topics of interest to both neurological surgeons and otolaryngologists.\(^\text{28,31,34,45,54-56,60,62}\) WestlawNext is composed of publicly available court records that are collected by commercial vendors, who vary by jurisdiction. Some jurisdictions may include only cases submitted voluntarily by legal counsel.\(^\text{34,45}\) However, we have previously contacted Westlaw concerning this issue; research support staff indicated that many jurisdictions contain nonvoluntarily submitted cases, which are frequently labeled “Anonymous,” “Confidential,” or “John Doe v Jane Doe.”\(^\text{18}\)

An online search with the names of neurological surgeons serving as expert witnesses in these cases along with the term “neurosurgery” or “neurosurgeon” was conducted. Sources including hospital or medical practice websites and academic faculty profiles were used to determine date of graduation from medical school and whether the individual held an academic position. Additionally, we searched the online registries for individual state licensing medical boards to confirm information obtained online, or in the cases of practitioners for whom no academic or medical practice profiles could be found on the Web, we used the recorded date of graduation from medical school. Rather than the date of residency completion, graduation from medical school was used in this analysis, as this information is more widely available on state medical licensing websites.

Scholarly impact of all expert witnesses was determined using the *h* index, an objective and widely available measure of an individual’s influence upon a field that has been previously shown to be strongly associated with scholarly productivity, academic rank (for those in academic practice), and grant funding procurement among practitioners in multiple specialties, including neurological surgery.\(^\text{7,10,14,17,29,35-37,41,43,52,53,55-59}\) The Scopus database (www.scopus.com) was used to calculate this bibliometric for the present analysis, as it has been of value in several prior analyses of the *h* index.\(^\text{17,18,47,59}\) One analysis among neurosurgeons found a high degree of correlation between results from the Scopus database and Google Scholar, another commonly used *h* index resource.\(^\text{29}\) All data were collected in March 2013.

**Statistical Analysis**

Mann-Whitney U-tests were used for statistical comparison of nonparametric (asymmetrically distributed) continuous variables and a Student t-test was used for comparison of normally distributed continuous variables, with threshold for significance set at *p* < 0.05. Pearson’s chi-square analysis was used for comparison of categorical variables. SPSS version 20 (IBM) was used for statistical calculations.

**Results**

Encompassing jury and settlement reports from 2008 through 2012, a total of 326 cases involving neurological surgeon expert witness testimony were retrieved from the WestlawNext database. There were 127 different neurological surgeons testifying on behalf of plaintiffs and 143 on behalf of defendants. Considering those testifying on behalf of a side multiple times, 20.4% of plaintiff experts testified 2 or more times, compared with 12.6% of defense experts (Table 1). Plaintiff experts had an average of 34.5 years of experience (± 1.01 years [SEM]), statistically equivalent to defense experts (33.2 ± 0.80 years [SEM]) (t-test, *p* = 0.35) (Fig. 1A). As measured by the *h* index, defense witnesses had higher scholarly impact (mean *h* in-

<table>
<thead>
<tr>
<th>No. of Times Testifying</th>
<th>Plaintiff</th>
<th>Defense</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
<td>12</td>
</tr>
</tbody>
</table>

*J Neurosurg / Volume 120 / January 2014*
Expert witnesses in neurosurgery

dex 8.76, median $h$ index 5, interquartile range 1–15) than their plaintiff counterparts (mean $h$ index 5.46, median 2, interquartile range 0–7) (Mann-Whitney U-test, $p < 0.001$) (Fig. 1B). A significantly higher proportion of neurological surgeon expert witnesses for the defense were full-time faculty in an academic neurosurgical department (46.1%) than their plaintiff counterparts (24.4%) (chi-square test, $p < 0.001$) (Fig. 1C).

**Discussion**

Neurological surgeons testifying on behalf of plaintiffs and their colleagues testifying for defendants were over 30 years removed from medical school in this analysis (Fig. 1A). Few would disagree that this represents a well-experienced group of practitioners whose opinions may be valued by juries interpreting evidence in malpractice litigation. Several possibilities may explain these findings, including the fact that more experienced experts are sought by litigators precisely because they may be perceived as more credible by juries or that this cohort of experts is more likely to satisfy standards set by the Daubert case. Additionally, neurological surgeons in the later part of their careers may not be as active in the operating room as their younger colleagues and thus may simply have more time available to contribute to nonclinical activities such as expert testimony. In contrast to a previous study of otolaryngologist experts, there was no difference in experience between these 2 cohorts in neurological surgery. Consequently, these groups appear similarly qualified when taking only duration of time in practice into account.

Although plaintiff and defendant experts spent equivalent times in practice, differences in other factors were statistically significant. Defense experts had a higher scholarly impact, as measured by the $h$ index, than their plaintiff counterparts ($h$ index 8.8 vs 5.5; Fig. 1B). In the academic world, this disparity in scholarly productivity is equivalent to the differences calculated between assistant and associate professors based on previous analyses of the $h$ index among neurological surgeons. Additionally, another difference between these 2 cohorts involved practice setting (Fig. 1C), with nearly twice as many defendant witnesses involved in academic practice. In an analysis attempting to gauge expertise between 2 cohorts, this finding potentially contributes to the perception of greater expertise for those testifying on behalf of defendants. There is the possibility that defendant neurological surgeons help their legal counsel identify experts relevant to their cases, particularly ones that have performed many procedures and conducted meaningful research within their particular discipline. In contrast, identifying these individuals may be more difficult for plaintiff attorneys, as they may not have a neurological surgeon assisting them with this process.

Surgeons practicing in academic medical centers see a higher volume of more complicated pathologies on a more regular basis. Patients with many of these disorders have better outcomes at these higher-volume hospi-
tals, including major academic centers. This is not to definitively attribute greater experience or expertise to those who choose to practice in an academic setting relative to their colleagues in private practice. Rather, it is to point out that better outcomes for many neurosurgical patients have been documented at higher-volume centers, which may be due to a multitude of other factors outside the scope of this analysis, such as increased physician supervision by house staff, greater opportunities for interdisciplinary management, and more integrated nursing care. Additionally, nonmedical laypersons share this perception that these academic institutions have higher quality care, and this is the population of which juries are composed.

Nearly every medical specialty society releases a list of guidelines regarding expert witness testimony. The American Association of Neurological Surgeons’ (AANS) longstanding guidelines stress that all testimony must remain impartial regardless of the side one is serving and that surgeons should identify whenever a matter of personal opinion (rather than settled standards) is brought up during proceedings. Other highlights include that the expert should either be actively practicing or, at a minimum, “demonstrate enough familiarity with present practices to warrant designation as an expert.” Finally, it is important to note that AANS guidelines discourage testifying neurological surgeons from accepting contingency fees (payment contingent on a favorable outcome).

Expert witnesses may run the risk of sanctions from professional organizations should they deviate from set guidelines. Several neurological surgeons served as expert witnesses in multiple cases since 2008 (Table 1). This issue appears to be more frequent among those testifying on behalf of plaintiffs. As an example, there were 2 witnesses who testified exclusively on behalf of plaintiffs a total of 6 times each during this 5-year period. Expert witnesses for both plaintiffs and defense play a valuable role in the adjudication process; however, testifying repeatedly (and exclusively) for one side calls into question an individual’s objectivity. The possible risks of sanctions from professional organizations along with the perceived stigma of repeatedly serving as an expert witness, particularly for those testifying on behalf of plaintiffs, may potentially contribute to a difficulty in finding individuals willing to testify. As a result, when legal professionals identify a practitioner willing to testify as a plaintiff witness, they may potentially have the opportunity to testify multiple times. The number of times individuals are offered the opportunity to testify, as well as how frequently they refuse to testify, is not the type of information included in WestlawNext and thus is outside the scope of our analysis; therefore, we would like to emphasize that possibilities discussed regarding the availability of expert witnesses are purely speculative and not definitively supported by available data in the medical literature.

Although this analysis makes use of publicly available and objective data in an attempt to characterize the relative qualifications of expert witnesses, the subjective nature of what comprises “expertise” is a major limitation of the data collection for this study and with the tort system as it applies to medical malpractice. There are no widely and publicly accessible ways to gauge experts’ knowledge and skill set relative to the topics on which they testify. One especially valuable measure would have been an analysis of the experience witnesses had in performing particular procedures about which they testified. Unfortunately, the specific experience of those testifying is not accessible for the purposes of this analysis. Another potential proxy for this information would have been to gauge the size of individuals’ practices as a marker for experience with complex problems. The relevance of this measure, however, may have been unclear, as the quality of practice setting information available online varied widely, particularly for those not in academia, and any conclusions drawn from this would have been unreliable. In the current study, we attempted to characterize expertise by experience, practice setting, and scholarly impact, which may not be entirely reflective of a practitioner’s proficiency in the field.

Another potential limitation may be the use of the h index to characterize scholarly impact. Number of publications, frequency of citation in the literature, and procurement of grant awards may also be indicators of research productivity. Nonetheless, the h index is a widely accessible measure that objectively gauges the frequency and consistency with which an individual is having an influence on scholarly discussion within a field, and it has been repeatedly shown (in multiple specialties) to be strongly associated with academic promotion, scholarly impact, and National Institutes of Health funding procurement, as well as other indicators of academic productivity. Nonetheless, we would like to emphasize that there is no evidence that measurable scholarly impact necessarily equates with greater medical knowledge or familiarity with a topic such as neurosurgical practice standards, and it should not be used to attribute “expertise” to an individual. Rather, it is simply one of several objective parameters we were able to calculate to facilitate comparison between witnesses testifying for opposing sides. All this higher h index indicates is that individuals testifying on behalf of defendants tend to have higher scholarly impact, likely bearing a relation to the increased proportions serving in academic settings.

Finally, the WestlawNext legal database may not contain some out-of-court settlements but rather is focused on court proceedings that progressed far enough to the point of inclusion in publicly available state and federal court records. Consequently, there is the possibility that the expert witness demographics in cases that did not make it to trial or reach public court records may differ from those included in this analysis. Nonetheless, this database has still been proven of value in analyses characterizing the medicolegal aspects of a wide variety of topics.

Conclusions

Neurological surgeons testifying as expert witnesses in malpractice litigation averaged over 30 years of experience, representing a cohort likely in the later stages of their careers. Practitioners testifying on behalf of defendants had significantly higher scholarly impact and were more likely to practice in an academic setting than their
Expert witnesses in neurosurgery

colleagues testifying for plaintiffs. Additionally, differences were noted among individuals testifying in multiple cases, with a higher proportion of plaintiff experts testifying repeatedly than their defendant counterparts.

Disclosure

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

Author contributions to the study and manuscript preparation include the following. Conception and design: Liu, Eloy, Svider. Acquisition of data: Svider. Analysis and interpretation of data: Liu, Eloy, Svider. Drafting the article: Svider. Critically revising the article: all authors. Reviewed submitted version of manuscript: all authors. Approved the final version of the manuscript on behalf of all authors: Liu. Statistical analysis: Svider. Administrative/technical/material support: Liu, Eloy, Folbe, Couldwell. Study supervision: Liu, Eloy.

References


Accepted August 22, 2013.

Please include this information when citing this paper: published online September 27, 2013; DOI: 10.3171/2013.8.JNS13584.

Address correspondence to: James K. Liu, M.D., Department of Neurological Surgery, Neurological Institute of New Jersey, Rutgers University, New Jersey Medical School, 90 Bergen St., Ste. 8100, Newark, NJ 07103. email: james.liu.md@rutgers.edu.