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IN THE COURT OF APPEALS OF NORTH CAROLINA

No. COA19-291

Filed: 17 March 2020

Henderson County, No. 15 CVS 2000

ANDREA R. WALLACE, Plaintiff,

v.

KEITH M. MAXWELL, MD; SOUTHEASTERN SPORTS MEDICINE, PLLC; SOUTHEASTERN SPORTS MEDICINE, PLLC d/b/a HENDERSONVILLE SPORTS MEDICINE AND REHABILITATION; and SOUTHEASTERN SPORTS PHYSICIAN SERVICES, PLLC, Defendants.

Appeal by plaintiff from orders entered 10 July 2018 by Judge Richard S. Gottlieb in Henderson County Superior Court. Heard in the Court of Appeals 16 October 2019.

Fred D. Smith, Jr., P.C., by Jeremy Swindlehurst and Fred. D. Smith, Jr., for plaintiff-appellant.

Roberts & Stevens, PA, by Phillip T. Jackson, James W. K. Wilde, and Ann-Patton Hornthal, for defendants-appellees.

BERGER, Judge.

Andrea R. Wallace (“Plaintiff”) appeals from an order granting directed verdict in favor of Keith M. Maxwell, M.D. (“Dr. Maxwell”); Southeastern Sports Medicine, PLLC; Southeastern Sports Medicine, PLLC d/b/a Hendersonville Sports Medicine

and Rehabilitation; and Southeastern Sports Physician Services, PLLC (collectively, “Defendants”). On appeal, Plaintiff contends the trial court erred by imposing a special rule of proximate cause and by excluding Dr. Robert Banco’s (“Dr. Banco”) proposed testimony regarding causation. For the reasons explained herein, we uphold the trial court’s order granting directed verdict in favor of Defendants.

Factual and Procedural Background

On April 23, 2012, Plaintiff was admitted to Park Ridge Hospital for severe back pain and weakness in her legs. Plaintiff was seen by Dr. Maxwell the next day. According to Dr. Maxwell’s notes, during their consultation they “discussed her options” and Plaintiff “elected to proceed with a micro discectomy.” Plaintiff was “cautioned that she was likely to get no relief in her back pain because of her preexisting multilevel degenerative disc disease and that some of her leg pain would not be resolved because of preexisting diabetic neuropathy.”

The following day, April 25, 2012, Plaintiff was taken into surgery and Dr. Maxwell performed spine surgery on Plaintiff, specifically, a micro laminectomy and discectomy. The surgery was intended to reduce decompression of the spinal nerve roots. After surgery, Plaintiff informed the hospital that she had bowel and bladder dysfunction and motor and sensation deficits in her lower extremity.

On April 26, 2012, Plaintiff underwent an MRI which revealed that she had herniation. Plaintiff was diagnosed with cauda equina syndrome complete (“CES-R”

or “CES-Complete”), which includes symptoms consistent with Plaintiff’s complaints.

Dr. Banco testified:

The term cauda equina syndrome has been used to describe the signs and symptoms found in patients with compressive neuropathy of multiple lumbar and sacral roots. Cauda equina syndrome can have grave long-term consequences for the patient. These include urinary and bowel dysfunction and varying degrees of motor and sensory deficits in the lower extremities. Compression of the cauda equina is usually caused by extradural space occupying the lesions resulting from disc protrusions, tumors, trauma, infection, or spinal stenosis. Ischemia is also recognized as a cause of CES.

CES can either be complete or incomplete. The main difference between the two is that patients who are diagnosed with CES incomplete (“CES-I”), and have surgical treatment, have better outcomes than patients who are diagnosed with CES-Complete (“CES-R”), and have surgical treatment.

Following the diagnosis of CES-R, Plaintiff was taken into surgery and Dr. Maxwell performed a lumbar laminectomy and removed recurrent disc fragments. After this second surgery, Plaintiff continued to have bowel, bladder, and motor dysfunction. Plaintiff was transferred from Park Ridge Hospital to Mission Hospital on April 30, 2012. On May 4, 2012, Dr. Herbery Gooch (“Dr. Gooch”) performed a third surgery on Plaintiff’s lumbar spine. Plaintiff continues to have bowel and bladder dysfunction and bilateral paraparesis since Dr. Gooch’s surgery.

On August 8, 2013, Plaintiff filed a medical malpractice complaint against Defendants. Plaintiff filed a notice of voluntary dismissal on August 6, 2015. The

medical malpractice complaint in the present action was filed in November 2015. On March 17, 2016, a consent discovery scheduling order (“DSO”) was entered, in which the trial court set a deadline for parties to identify any and all expert witnesses to be called to testify at trial.

On April 28, 2016, Plaintiff identified Dr. Banco as her expert witness on standard of care and causation. Dr. Banco’s first deposition occurred on July 20, 2016. After this first deposition, Plaintiff filed three separate supplemental designations of expert witnesses pursuant to the DSO, and Dr. Banco was deposed three additional times. Dr. Banco’s fourth and final deposition took place on March 9, 2018.

Prior to the final deposition, Defendants filed a Motion *in limine* to Exclude Dr. Banco’s Causation Testimony (“Defendants’ Motion *in limine*”). On October 6, 2017, Defendants’ Motion *in limine* was heard and the parties agreed that the Rule 702 motion would be reserved until trial when the expert in question could be subject to *voir dire* by counsel. Trial was scheduled to begin on October 23, 2017 but it was continued to April 9, 2018.

A *voir dire* hearing of Dr. Banco began on April 17, 2018. During *voir dire*, Dr. Banco testified that Dr. Maxwell’s care and treatment of Plaintiff up to her second surgery met the applicable standard of care. Dr. Banco was asked if he had “an opinion to a reasonable degree of medical probability as to the cause of [Plaintiff’s] permanent neurologic deficits of neurogenic bowel and bladder and bilateral

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paraparesis?” In response, he stated: “[Plaintiff’s] resulting injuries are from consistent and persistent compression of a central disc herniation causing damage to her cauda equina.” He further stated the compression persisted “because of an inadequate decompression, inadequate laminectomy” by Dr. Maxwell. He further opined that the standard of practice to treat any compression in Plaintiff’s spine causing CES would have been to perform a wide laminectomy. With regard to causation, he testified that had Dr. Maxwell performed a wide laminectomy during the second surgery, Plaintiff would have had a 70 to 80% chance of full recovery of bowel, bladder, and motor function (“Banco Causation Opinion”).¹ Dr. Banco testified he relied on medical literature regarding CES in making his Banco Causation Opinion.² Both parties questioned him on the medical literature he purportedly relied on.

In an order filed July 10, 2018, the trial court concluded that Dr. Banco’s expert testimony was “unreliable” and ordered it excluded. In support of its conclusion, the trial court found, in pertinent part:

144. None of the peer reviewed articles directly support Dr. Banco’s Causation Opinion. . . . [N]one of the peer

¹ We note Dr. Banco originally stated Plaintiff would have had a 70% to 80% chance of normal recovery, but during cross-examination, when asked to clarify whether he meant normal or full recovery, he stated “full recovery.”

² During Dr. Banco’s depositions and *voir dire* and in the trial court’s orders, the medical literature Dr. Banco purportedly relied on in forming his opinion was referred to by the author’s last name. This Opinion will likewise refer to the articles by the author’s last name. The articles referred to are: Ahn, Delamarter, Gardner, Gleave & MacFarlane, Jensen, Kohles, Kostuick, Mahadevappa, McLaren, Shapiro, Spector, and Thakur.

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reviewed articles presented during the *voir dire* directly support that a patient with CES-R and who is insulin dependent and hypertensive would have a greater than 50% of a full recovery of bowel, bladder, and motor function if a wide laminectomy is performed within a few hours of the diagnosis of CES-R.

145. Dr. Banco's Causation Opinion is not supported within the medical literature that was reviewed during the *voir dire* of Dr. Banco.

146. The medical literature on CES outcomes and timing of surgery and/or type of surgery is evolving, inconsistent and confusing.

147. Use of the medical literature to support the Banco Causation Opinion requires supposition and speculation, including supposition and speculation about the meaning of the terminology used within the medical literature.

148. The medical literature upon which Dr. Banco relies does not address Plaintiff's comorbidities of insulin dependent diabetes and hypertension in relationship to outcome with sufficient specificity to support the Banco Causation Opinion.

That same day, July 10, 2018, the trial court filed an order granting a directed verdict in favor of Defendants based on the following relevant findings:

2. The Court, following the *voir dire* examination of Dr. Robert Banco, granted the Defendants' Motion in Limine to Exclude Dr. Banco's Causation Testimony. The Court's decision was issued from the bench on April 17, 2018. That Order from the bench excluding the causation testimony of Dr. Banco has been rendered to writing is the subject of a separate order entered in this matter.

3. Following the Court's ruling to exclude the causation testimony of Dr. Banco, counsel for Plaintiff represented to the Court that the only evidence the Plaintiff had to offer

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on the issue of proximate cause in this action was that evidence which the Court had excluded pursuant to the ruling referenced in Finding of Fact No. 2.

4. Following the Court's ruling to exclude the causation testimony of Dr. Banco, the Court inquired as to Plaintiff's next witness and if the Plaintiff would present additional evidence. At that time, Plaintiff's counsel indicated that Plaintiff would not put on any additional evidence because the only evidence Plaintiff had to offer on the element of proximate cause was the excluded causation testimony of Dr. Banco. The Court therefore finds that the Plaintiff cannot present competent and admissible evidence on the issue of proximate cause.

9. Because the Plaintiff cannot satisfy the element of proximate cause, the Defendants are entitled to have a directed verdict entered in their favor on all claims asserted by the Plaintiff.

It is from this order that Plaintiff appeals. On appeal, Plaintiff argues the trial court should not have granted a directed verdict in Defendants' favor because it erroneously imposed a special rule of proximate cause in deciding whether Dr. Banco's testimony was sufficient to establish proximate cause and erroneously excluded Dr. Banco's testimony on proximate cause.

Analysis

We review a trial court's order granting a motion for directed verdict *de novo*. *Day v. Brant*, 218 N.C. App. 1, 4, 721 S.E.2d 238, 242 (2012). "The Court must determine whether, upon examination of all the evidence in the light most favorable to the nonmoving party, and that party being given the benefit of every reasonable

inference drawn therefrom, the evidence is sufficient to be submitted to the jury.” *Id.* at 4-5, 721 S.E.2d at 242 (*purgandum*).

As a preliminary matter, we note that, although Plaintiff contends the trial court erred in granting directed verdict in Defendants’ favor, Plaintiff’s arguments on appeal stem from the trial court’s order granting Defendants’ Motion *in limine*, which excluded Dr. Banco’s expert testimony.³ “A motion *in limine* seeks pretrial determination of the admissibility of evidence proposed to be introduced at trial; its determination will not be reversed absent a showing of an abuse of the trial court’s discretion.” *Schmidt v. Petty*, 231 N.C. App. 406, 409-10, 752 S.E.2d 690, 692 (2013) (citation and quotation marks omitted).

We also note that on appeal, Plaintiff does not challenge any specific findings of facts or conclusions of law in the trial court’s order excluding Dr. Banco’s testimony. “Where no exception is taken to a finding of fact by the trial court, the finding is presumed to be supported by competent evidence and is binding on appeal.” *King v. Bryant*, 369 N.C. 451, 463, 795 S.E.2d 340, 348 (2017) (*purgandum*).

“In a medical malpractice action, a plaintiff has the burden of showing (1) the applicable standard of care; (2) a breach of such standard of care by the defendant; (3) the injuries suffered by the plaintiff were proximately caused by such breach; and

³ In Plaintiff’s Notice of Appeal, she specifically appealed from two separate trial court orders: the order granting Defendants’ Motion *in limine* and the order granting directed verdict in Defendants’ favor.

(4) the damages resulting to the plaintiff.” *Purvis v. Moses H. Cone Mem’l Hosp. Serv. Corp.*, 175 N.C. App. 474, 477, 624 S.E.2d 380, 383 (2006) (internal citation and quotation marks omitted). Proximate cause is defined as

a cause which in natural and continuous sequence, unbroken by any new and independent cause, produced the plaintiff’s injuries, and without which the injuries would not have occurred, and one from which a person of ordinary prudence could have reasonably foreseen that such a result, or consequences of a generally injurious nature, was probable under all the facts as they existed.

Cousart v. Charlotte-Mecklenburg Hosp. Auth., 209 N.C. App. 299, 303, 704 S.E.2d 540, 543 (2011) (citation and quotation marks omitted). “Whether medical negligence plaintiffs can show causation depends on experts. For, expert opinion testimony is required to establish proximate causation of the injury in medical malpractice actions.” *Id.* at 303, 704 S.E.2d at 543.

I. Evidentiary Rulings

We first address Plaintiff’s arguments regarding the trial court’s exclusion of Dr. Banco’s expert testimony on causation. Plaintiff specifically contends that the trial court applied the incorrect standard when it excluded Dr. Banco’s testimony. Plaintiff also contends that the trial court’s exclusion of Dr. Banco’s testimony under Rule 403 of North Carolina’s Rules of Evidence was erroneous. We address each argument in turn.

A. Expert Witness Testimony

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We review a trial court's decision to exclude expert testimony for an abuse of discretion. *State v. McGrady*, 368 N.C. 880, 893, 787 S.E.2d 1, 11 (2016). "Abuse of discretion results where the court's ruling is manifestly unsupported by reason or is so arbitrary that it could not have been the result of a reasoned decision." *State v. Hennis*, 323 N.C. 279, 285, 372 S.E.2d 523, 527 (1988). "Where the plaintiff contends the trial court's decision is based on an incorrect reading and interpretation of the rule governing admissibility of expert testimony, the standard of review on appeal is *de novo*." *Cornett v. Watauga Surgical Grp., P.A.*, 194 N.C. App. 490, 493, 669 S.E.2d 805, 807 (2008). Here, we review the standard applied *de novo* and the trial court's analysis for abuse of discretion.

Upon review, the trial court did not apply the incorrect standard or misinterpret the correct standard regarding admissibility of expert testimony. The admission of expert testimony is governed by Rule 702 of the North Carolina Rules of Evidence. *McGrady*, 368 N.C. at 884, 787 S.E.2d at 5. In 2011, the General Assembly amended Rule 702 and incorporated the standard of reliability announced in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). *Id.* at 888, 787 S.E.2d at 8. *McGrady* explains the correct interpretation of Rule 702(a) as amended. Here, the trial court's unchallenged findings of fact reflect it correctly considered whether Dr. Banco's expert testimony was admissible under Rule 702(a), *Daubert*, and *McGrady*:

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128. Expert testimony is governed by *North Carolina Rule of Evidence* 702, which is now virtually identical to its federal counterpart and follows the *Daubert* standard for admitting expert testimony. *State v. McGrady*, 368 N.C. 880, 884, 787 S.E.2d 1, 5 (2016)).

129. Rule 702 has three main requirements: (1) expert testimony must be based on specialized knowledge that will assist the trier of fact, (2) the expert must be qualified by knowledge, skill, experience, training, or education, and (3) the testimony must be reliable. *Id.* at, 368 N.C. at 889-90, 787 S.E.2d at 8-9; N.C. R. Evid. 702(a).

130. An expert's testimony is reliable if:

- (1) The testimony is based upon sufficient facts or data
- (2) The testimony is the product of reliable principles and methods.
- (3) The witness has applied the principles and methods reliably to the facts of the case.

N.C. R. Evid. 702(a)(1)-(3).

131. The focus of the trial court's inquiry "must be solely ... [the] principles and methodology" used by the expert, "not the conclusions that they generate." *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579, 582, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993). The trial court is tasked with making the preliminary decision of the testimony's admissibility and has discretion in determining how to address the three prongs of the reliability test. *McGrady*, 368 N.C. at 892-93, 787 S.E.2d at 9-10.

141. In determining that the Banco Causation Opinion is not reliable and should not be presented to the jury, the Court has considered all of the applicable and relevant factors under the three-pronged reliability test that is contained in Rule 702(a)(1)-(3) of the North Carolina Rules of Evidence.

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142. The Court, in its discretion, and based on the reliability factors established by Rule 702(a)(1)-(3) of the North Carolina Rules of Evidence and the North Carolina cases interpreting those factors, has concluded that the Banco Causation Opinion is unreliable and inadmissible.

143. Although an expert may rely on medical literature in forming and developing an opinion (see, e.g. *Ingram v. Henderson Cty. Hosp. Corp., Inc.*, _ N.C. App. _ S.E.2d _ 2018 N.C. App. LEXIS 421 (2018), such reliance must be based on a reliable application of the literature.

We now address whether the trial court abused its discretion when it excluded Dr. Banco's expert testimony.

"Whether expert witness testimony is admissible under Rule 702(a) is a preliminary question that a trial judge decides." *McGrady*, 368 N.C. at 892-93, 787 S.E.2d at 10 (citations omitted). "In this capacity, trial courts are afforded wide latitude of discretion when making a determination about the admissibility of expert testimony." *Michael v. Huffman Oil Co.*, 190 N.C. App. 256, 261, 661 S.E.2d 1, 5 (2008). As amended, Rule 702(a) states the following:

- (a) If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion, or otherwise, if all of the following apply:
 - (1) The testimony is based upon sufficient facts or data.
 - (2) The testimony is the product of reliable principles and methods.
 - (3) The witness has applied the principles and methods reliably to the facts of the case.

N.C. Gen. Stat. § 8C-1, Rule 702(a) (2017).

“While proximate cause is often a factual question for the jury, evidence based merely upon speculation and conjecture . . . is no different than a layman’s opinion, and as such, is not sufficiently reliable to be considered competent evidence on issues of medical causation.” *Cousart*, 209 N.C. App. at 303, 704 S.E.2d at 543 (citation and quotation marks omitted). “The primary focus of the inquiry is on the reliability of the witness’s principles and methodology . . . not on the conclusions that they generate.” *McGrady*, 368 N.C. at 890, 787 S.E.2d at 9 (internal citation and quotation marks omitted).

In the context of scientific testimony, *Daubert* articulated five factors from a nonexhaustive list that can have a bearing on reliability: (1) “whether a theory or technique . . . can be (and has been) tested”; (2) “whether the theory or technique has been subjected to peer review and publication”; (3) the theory or technique’s “known or potential rate of error”; (4) “the existence and maintenance of standards controlling the technique’s operation”; and (5) whether the theory or technique has achieved “general acceptance” in its field. *Daubert*, 509 U.S. at 593-94. When a trial court considers testimony based on “technical or other specialized knowledge,” N.C. R. Evid. 702(a), it should likewise focus on the reliability of that testimony, *Kumho*, 526 U.S. at 147-49. The trial court should consider the factors articulated in *Daubert* when “they are reasonable measures of the reliability of expert testimony.” *Id.* at 152. Those factors are part of a “flexible” inquiry, *Daubert*, 509 U.S. at 594, so they do not form “a definitive checklist or test,” *id.* at 593. And the trial court is free to consider other factors that may help assess reliability given “the nature of the issue, the expert’s particular expertise, and the subject of his testimony.” *Kumho*, 526 U.S. at 150.

McGrady, 368 N.C. at 890-91, 787 S.E.2d at 9-10.

Plaintiff contends the trial court did not give the following two *Duabert* factors enough weight when determining whether the medical literature Dr. Banco relied on was reliable: “whether the theory or technique has been subjected to peer review and publication” and “whether the theory or technique has achieved general acceptance in its field.” Plaintiff specifically contends “the trial court ignored the seminal peer-reviewed, generally accepted observational studies by Kostuik, Gleave and MacFarlane, and Shapiro reporting 70 to 80% recovery of neurologic deficits in CES patients treated with wide laminectomy.” Plaintiff also contends the Jensen, Spector, and Gardner articles supported Dr. Banco’s Causation Opinion. However, during *voir dire*, Dr. Banco conceded that he did not rely on the Jensen and Spector articles in forming the Banco Causation Opinion.

Additionally, the trial court’s findings and the record reflect Dr. Banco provided testimony that undermined the reliability of the Kostuik, Gleave and MacFarlane, Shapiro, and Gardner articles as applied to the facts of the case. The trial court’s findings reveal that the datasets and outcomes in these articles were inconsistent, confusing, and evolving and did not all account for comorbidities, like Plaintiff’s. *See McGrady*, 368 N.C. at 890-91, 787 S.E.2d at 9-10 (explaining the trial court is free to consider any factors that may help assess reliability). The trial court made the following pertinent findings:

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89. Dr. Banco read the following sentence from the Gardner Article: “It is well established that the outcome for patients with cauda equina syndrome-incomplete at the time of surgery is generally favorable, whereas those who have deteriorated to cauda equina syndrome-retention when the compression is relieved have a poorer prognosis, although around 70% of cauda equina syndromeretention patients have a socially acceptable long-term outcome.”

90. Dr. Banco testified that he relied upon the Gardner Article for the Banco Causation Opinion.

91. The Gardner Article does not provide a percentage for complete or full recovery.

92. The Gardner Article does not define “socially acceptable long-term outcome.”

93. The sentence from the Gardner Article quoted in ¶ 89 was sourced, via a footnote, to another article. That article being the Gleave Article.

94. The Gleave Article states: “Although it is impossible to give a definitive opinion on the outcome of an individual case with CES-R as to whether they would or would not have been helped or harmed by early surgery, we believe the literature demonstrates no benefit”

95. Dr. Banco testified, when asked to reconcile how the sentence from the Gardner Article quoted in ¶ 89 above could be based on the Gleave Article which stated that the literature demonstrates no benefit to early surgery, Dr. Banco testified that the data in the medial literature on outcomes for CES were “all over the place.” Dr. Banco said the problem was that there was no “standard database that gives us all the information.” Dr. Banco testified that the medical literature on the topic of percentage chance of recovery based on timing of surgery was “very confusing.”

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98. Dr. Banco also testified that the applicability of the Kostuik Article was limited because of the 30 patient data set and also because it is hard to study CES prospectively.

101. Dr. Banco agreed that the Shapiro Article did not differentiate outcomes for patients in CES-R and CES-I.

These findings are supported by the record. Furthermore, when discussing the Gardner article, Dr. Banco further conceded the subject was “very confusing” because “we don’t have a solid standard database that gives us all the information. And some people say it’s -- you can read Kos[t]uik’s article, they have 75% satisfactory outcome. You can talk to Gleave and MacFarlane, and they can say no benefit. You can read a lot of different pieces of information on this specific topic.”

The trial court’s findings also reflect that some of the remaining medical articles discussed with Dr. Banco during *voir dire* were not sufficiently reliable. Dr. Banco acknowledged hypertension can have an impact on the chances of recovery from surgery performed to correct cauda equina syndrome. During *voir dire*, he stated his opinion rendered during a prior deposition remained the same:

[Defense Counsel]. You said earlier toward the beginning of this deposition you would assume that there’s patients who have diabetes and chronic hypertension just from your basic medical knowledge that would likely not have a good of a chance as a patient that did not have those conditions as far as recovering from a prompt surgery to treat cauda equina. And what was your answer?

[Dr. Banco]. Their chances for a significant deficit are higher because of comorbid factors. It still doesn’t mean that you don’t do the operation that’s necessary.

[Defense Counsel]. Is that still your testimony today?

[Dr. Banco]. Yes.

Defense counsel also asked Dr. Banco if he was aware of any literature discussing insulin-dependent diabetics who develop cauda equina, like Plaintiff. Dr. Banco conceded that diabetes is an important factor to consider when discussing chances of recovery after surgery to treat cauda equina syndrome. Dr. Banco could not give a definitive response when asked whether patients with diabetes who receive the proper treatment fair worse than patients who are not diabetic:

[Defense Counsel]. Patients who are brittle diabetics who go into cauda equina syndrome, who have the correct surgery and have it promptly, fair worse than patients who are not brittle diabetics?

[Dr. Banco]. We don't know that. Theoretically, theoretically, you know, patients that have diabetics don't recover from neurological compression as well as patients who don't have diabetics. That's what I'm saying. But there's nothing in the literature that says that they won't recover, and there's nothing in the literature that says that they will recover less. This is a theoretical phenomena that we're talking about.

Dr. Banco further testified that he was unaware of any literature discussing the correlation except for the Thakur article. When asked about the Thakur article, Dr. Banco stated the article took a cohort of patients with diabetes and cauda equina syndrome and included it in the statistical analysis, but the article did not evaluate their outcomes in a separate analysis. Furthermore, Dr. Banco agreed with the following statements in the Thakur article: "The study serves primarily as a nidus

for further investigation” and “[q]uite simply, the paucity of relevant CES-specific data in the database requires faith in proxies and statistical gymnastics that would be unacceptable in a prospective design.”

Moreover, while Dr. Banco disagreed with the following statement in the Mahadevappa article, the trial court found it to be relevant and included it in its findings: “There is no convincing evidence that surgical treatment is effective when compared with no surgical treatment.” Dr. Banco acknowledged that the Delamarter article stated, “Surgery should be performed on an expedient rather than emergent basis, providing time for adequate studies to be performed. Additionally, surgery can be performed when the surgical team can function optimally. Although delays are not advocated, they cannot be considered to adversely affect the end result”; however, Dr. Banco cautioned that it is not cited as much today.

Based on Dr. Banco’s *voir dire* testimony, the trial court found that the principles and methodology utilized in the medical literature that Dr. Banco relied on and discussed were not “sufficiently reliable to be considered competent evidence on issues of medical causation.” *Cousart*, 209 N.C. App. at 303, 704 S.E.2d at 543 (citation and quotation marks omitted). It found in pertinent part:

144. None of the peer reviewed articles directly support Dr. Banco’s Causation Opinion. . . . [N]one of the peer reviewed articles presented during the *voir dire* directly support that a patient with CES-R and who is insulin dependent and hypertensive would have a greater than 50% of a full recovery of bowel, bladder, and motor function

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if a wide laminectomy is performed within a few hours of the diagnosis of CES-R.

145. Dr. Banco's Causation Opinion is not supported within the medical literature that was reviewed during the *voir dire* of Dr. Banco.

146. The medical literature on CES outcomes and timing of surgery and/or type of surgery is evolving, inconsistent and confusing.

147. Use of the medical literature to support the Banco Causation Opinion requires supposition and speculation, including supposition and speculation about the meaning of the terminology used within the medical literature.

148. The medical literature upon which Dr. Banco relies does not address Plaintiff's comorbidities of insulin dependent diabetes and hypertension in relationship to outcome with sufficient specificity to support the Banco Causation Opinion.

It was in the trial court's discretion to use the factors it believed would best help it determine whether the principles and methods Dr. Banco relied on were reliable. *McGrady*, 368 N.C. at 891, 787 S.E.2d at 9-10. The trial court's findings addressing the medical literature Dr. Banco relied on were supported by the evidence. Because the trial court's findings were the product of a reasoned decision, we cannot say the trial court abused its discretion when it excluded Dr. Banco's testimony on causation.

B. Rule 403 of North Carolina's Rules of Evidence

Even if Dr. Banco's testimony on causation was grounded in reliable principles and methods, the trial court properly determined its probative value was

substantially outweighed by the danger of unfair prejudice or confusion of the issues under Rule 403 of the Rules of Evidence. Plaintiff contends, “[t]he trial court rulings in this regard do not reflect any undertaking to weigh the evidence and identify the specific degree of unfair prejudice or the areas of confusion in Banco’s evidence. The trial court’s analysis simply recited conclusions concerning confusion and prejudice with Rule 403 language.” We disagree.

“Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.” N.C. Gen. Stat. § 8C-1, Rule 403 (2017). “We review a trial court’s decision regarding whether to exclude evidence under Rule 403 for abuse of discretion.” *Nicholson v. Thom*, 236 N.C. App. 308, 326, 763 S.E.2d 772, 784 (2014).

Here, the trial court exercised its discretion and concluded “the testimony’s probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury.” This conclusion was supported by the following pertinent findings, which were supported by the record evidence:

114. The medical literature regarding CES discussed during the *voir dire* of Dr. Banco is evolving, inconsistent, and confusing. Reaching any medical conclusions (much less ones that withstand the rigors of Rule 702) based on the information currently available to physicians such as Dr. Banco requires “statistical gymnastics.”

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115. Conclusions based on the medical literature require supposition and speculation both in terms of chances of an improved outcome and as to the meaning of the terminology used within the medical literature.

117. The literature is not specific in measuring outcomes. As noted by Dr. Banco, some of the articles make reference to “socially acceptable recovery” and such a phrase is subject to interpretation.

118. The data on CES outcomes after surgery contained within the medical literature is, according to Dr. Banco “all over the place” and the Court agrees.

119. The literature does not contain a solid standard database that provides all the information to make determinations about what factors, such as timing of surgery and type of surgery affect outcome.

The trial court also made the following findings regarding Dr. Banco’s credibility based on his testimony changing in every deposition:

57. Dr. Banco gave four depositions in this action prior to providing his *voir dire* testimony. In each instance, Dr. Banco’s opinion testimony changed as he went from relying on his own “anecdotal” experience to reliance on his review of medical literature. Those depositions being given on July 20, 2016 (First Deposition); October 5, 2016 (Second Deposition); May 17, 2017 (Third Deposition); and March 9, 2018 (Fourth Deposition).

62. Dr. Banco testified at his first deposition that patients in CES-R who do not have the comorbidities of diabetes and hypertension have, anecdotally, around a 50% chance of recovery following a timely surgery. Dr. Banco testified that was still his testimony at the *voir dire* hearing. As noted above, Dr. Banco also testified at the first deposition that patients with the comorbidities of hypertension and diabetes who were in CES-R had worse outcomes than

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those without those two comorbidities. It is reasonable to infer from Dr. Banco's testimony, based on his anecdotal experience, that patients like Plaintiff, i.e. a patient in CES-R with the comorbid conditions of insulin dependent diabetes and hypertension, have less than a 50% chance of having a full recovery of bowel, bladder, and motor function following surgery for CES.

66. During the Second Deposition, Dr. Banco testified to the same percentages in ¶64 above. However, at the Second Deposition Dr. Banco also testified that:

- a. Plaintiff had a history of chronic low back pain and that according to the Ahn article patients with chronic low back pain had a 91% probability of having a urinary deficit following surgery for CES and a 96% probability of having rectal dysfunction after surgery for CES.
- b. Dr. Banco did not agree with the information in the Ahn Article as it related to probability that a patient with chronic low back pain would have urinary deficits and rectal dysfunction after a surgery for CES.

68. Dr. Banco testified at the *voir dire* hearing at trial that he was no longer relying upon the Ahn Article to support his causation opinion.

70. Following the January 31, 2017 supplementation, Dr. Banco was deposed for a third time on May 17, 2017. At that deposition Dr. Banco testified that he was relying on the following sentence from the Jensen Article (discussed further below) to support his opinion: "As mentioned previously, repeated surgery appears to provide for the best recovery with approximately 80 percent of the patients making either a complete or delayed partial recovery and 10 to 20 percent making no recovery." Dr. Banco testified that this sentence was not the conclusion of the author based on the results of the two patients discussed in the case report section of the Jensen Article, but instead was

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information the author was purporting to summarize from the medical literature.

71. Regarding the quoted sentence from the Jensen Article, Dr. Banco testified that there were two footnotes at the end of the sentence, but that Dr. Banco had not reviewed either of the articles referenced in those two footnotes at the time of his Third Deposition.

73. Following the February 6, 2018 supplementation, Dr. Banco was deposed for a fourth time on March 9, 2018. At that deposition Dr. Banco purported to rely upon the Thakur Article to support his opinions about causation in this case.

These findings show that the trial court's ruling was a result of a reasoned decision. Accordingly, the trial court did not abuse its discretion when it decided to also exclude Dr. Banco's expert testimony under Rule 403.

Because the trial court excluded Plaintiff's only evidence on causation under Rule 702 and Rule 403, Plaintiff had no evidence on proximate cause. Accordingly, the trial court did not err when it granted directed verdict in Defendants' favor.

II. Proximate Cause

Plaintiff also argues that Defendants' Motion *in limine* should not have been granted because the trial court imposed the special rule of proximate cause in deciding whether Dr. Banco's testimony was sufficient to establish proximate cause.

"Proof of proximate cause in a malpractice case requires more than a showing that a different treatment would have improved the patient's chances of recovery."

White v. Hunsinger, 88 N.C. App. 382, 386, 363 S.E.2d 203, 206 (1988). "[T]he

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plaintiff must show that the injury was more likely than not caused by the defendant's negligent conduct." *Parkes v. Hermann*, ___ N.C. App. ___, ___, 828 S.E.2d 575, 577, *review allowed*, ___ N.C. ___, 832 S.E.2d 721 (2019).

In *Katy v. Capriola*, the plaintiff-estate filed a complaint alleging medical malpractice in "negligently delaying the diagnosis of Mrs. Katy's congestive heart failure and further alleged that the delay caused or contributed to her subsequent stroke and death." 226 N.C. App. 470, 473, 742 S.E.2d 247, 250 (2013). At trial, the defendants requested that the jury be instructed "that plaintiff had the burden to prove more than a mere increased chance of recovery and survival in order to establish proximate cause." *Id.* at 479, 742 S.E.2d at 254. This Court agreed with the defendants and concluded that "the trial court's failure to give defendants' requested special instruction was error." *Id.* at 481, 742 S.E.2d at 255. This Court noted that the defendants' requested instruction was based upon *White v. Hunsinger*, and stated that

there was evidence presented at trial that would have supported the special instruction. Although plaintiff points to evidence sufficient to show that a different outcome probably would have occurred with earlier hospitalization, the record also contains evidence that would allow the jury only to find that earlier hospitalization would have possibly given Mrs. Katy an improved chance of survival.

Id. at 480, 742 S.E.2d at 255.

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In *Seraj v. Duberman*, which Plaintiff cites to on appeal, this Court stated in dicta,⁴ “the rule that proximate causation requires a showing plaintiff probably would have been better off” only applies “when there is a negligent delay in treatment or diagnosis.” 248 N.C. App. 589, 600, 789 S.E.2d 551, 558 (2016). This Court explained, “the rule is part of a special jury instruction when the question for the jury to consider is whether the injury is proximately caused by the delay in treatment or diagnosis.” *Id.* at 600, 789 S.E.2d at 558-59 (citing *Katy*, 226 N.C. App. at 481, 742 S.E.2d at 255).

These statements were not central to its decision. We first note that *Seraj* was not a negligent delay in treatment or diagnosis case. In *Seraj*, the plaintiff filed a complaint alleging medical malpractice during an operation on her arm. *Id.* at 590, 789 S.E.2d at 552. The alleged negligence in *Seraj* was the medical provider’s failure to conduct testing prior to surgery. *Id.* at 600-01, 789 S.E.2d at 559. The plaintiff argued surgery was not necessary and the medical provider should not have operated. *Id.* at 600-01, 789 S.E.2d at 559. Thus, the Court’s conclusion that “the rule that proximate cause requires a showing plaintiff probably would have been better off” only applies “when there is a negligent delay in treatment or diagnosis” is dicta.

Moreover, *Seraj* is readily distinguishable. In *Seraj*, the plaintiff did not contend different treatment was required but that no treatment was required. Here,

⁴ “Language in an opinion not necessary to the decision is *obiter dictum* and later decisions are not bound thereby.” *Trustees of Rowan Tech. Coll. v. J. Hyatt Hammond Assocs., Inc.*, 313 N.C. 230, 242, 328 S.E.2d 274, 281 (1985) (citations omitted).

in contrast, Plaintiff conceded Dr. Maxwell's care and treatment of Plaintiff up to her second surgery met the applicable standard of care. However, Plaintiff contends not performing a wide laminectomy during Dr. Maxwell's second surgery violated the standard of care, *i.e.* Plaintiff concedes she should have been treated, just in a different manner.

Plaintiff's claim is one based on a negligent choice in course of treatment. It is not that Dr. Maxwell performed the surgery negligently, but rather, that he selected the wrong course of treatment to correct Plaintiff's ailments. Thus, Plaintiff was required to show that she probably would have been better off had Dr. Maxwell treated her with a different procedure.⁵ *See White*, 88 N.C. App. at 386, 363 S.E.2d

⁵ In fact, North Carolina Pattern Jury Instruction 809.00A states, in pertinent part, the following regarding an instruction on proximate cause:

Proximate cause is a cause which in a natural and continuous sequence produces a person's [injury] [damage], and is a cause which a reasonable and prudent health care provider could have foreseen would probably produce such [injury] [damage] or some similar injurious result.

NOTE WELL: In cases where the evidence may give rise to a finding that there was a negligent delay in diagnosing or treating the plaintiff, and there is conflicting evidence on whether the delay increased the probability of injury or death sufficiently to amount to proximate cause of the injury or death, the trial court should further explain proximate cause. A similar rule applies in cases where a different treatment probably would have improved the chances of survival or recovery. The following special instruction should be given in these circumstances:

[It is not enough for the plaintiff to show that [different treatment] [earlier [diagnosis] [treatment] [hospitalization]] of [name plaintiff] [name decedent] would have improved *his* chances of survival and recovery. Rather, the plaintiff must prove that it is probable that a different outcome would have occurred with [different treatment] [earlier [diagnosis] [treatment] [hospitalization]]. The plaintiff must prove by the greater weight of the evidence that the [treatment] [alleged delay in [diagnosis] [treatment] [hospitalization]] more likely than not caused the [name the injury or precipitating condition] [and death] of [name plaintiff] [name decedent].

at 206 (“Proof of proximate cause in a malpractice case requires more than a showing that a different treatment would have improved the patient’s chances of recovery.”).

In the present case, prior to the trial court making its determination on Defendants’ Motion *in limine*, Plaintiff argued Dr. Banco’s testimony was only required to establish that Dr. Maxwell’s treatment probably caused Plaintiff’s injury. Defendants requested that the trial court consider “whether or not the plaintiff would have had an improved result had a wide laminectomy [] been performed.” The trial court agreed with Defendants and made the following finding:

133. Plaintiff could not prevail at trial by merely showing that a different course of action would have improved her chances of an improved outcome. . . . Satisfaction of proximate cause element for this action requires admissible expert opinion testimony that it is more probable than not that a different outcome would have occurred with different treatment.

This finding was not erroneous and consistent with *White* and *Katy*. The trial court did not err when it considered whether Dr. Banco’s testimony demonstrated “that it is more probable than not that a different outcome would have occurred with different treatment.”

N.C.P.I. – Civil 809.00A (citing *Katy v. Capriola*, 226 N.C. App. 470, 742 S.E.2d 247 (2013) and *White v. Hunsinger*, 88 N.C. App. 382, 363 S.E.2d 203 (1988)).

We further note that the Court in *Seraj* cited the pattern jury instruction when discussing the showing needed to establish proximate cause under the facts of the case. *Seraj*, 248 N.C. App. at 600, 789 S.E.2d at 559. However, the Court did not include the following sentence from the pattern jury instruction: “A similar rule applies in cases where a different treatment probably would have improved the chances of survival or recovery.”

Conclusion

Dr. Banco's expert testimony was excluded because his testimony, which was properly found to be based on unreliable medical literature, failed to show that a wide laminectomy would have improved Plaintiff's chances of recovery. The trial court also found the medical literature to be confusing and misleading and found Dr. Banco's testimony was not credible. The only evidence Plaintiff had to offer on the element of proximate cause was the excluded expert testimony of Dr. Banco. Because Plaintiff failed to provide any other evidence on the element of proximate cause to be submitted to the jury, we uphold the trial court's order granting directed verdict in favor of Defendants.

AFFIRMED.

Judges STROUD and DILLON concur.

Report per Rule 30(e).