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Kuhn v. Chambersburg Hospital, et al

BRANDON KUHN, a minor, by STEPHANIE KUHN and MICHAEL KUHN, his guardians, and STEPHANIE KUHN and MICHAEL KUHN, in their own right, Plaintiffs,

v. CHAMBERSBURG HOSPITAL and MICHAEL GROSSBERG, M.D., Defendants
Court of Common Pleas of the 39th Judicial District of Pennsylvania,

Franklin County Branch
Civil Action - Law, A.D. 1997-1

Evidence; Expert witnesses; Qualification of testimony

1. A Court may compel an evidentiary hearing to determine if methodology employed by an expert witness in a negligence case is generally accepted by the scientific community.

2. The gatekeeping role of the Court compels the trier of fact to ensure that what appears to be scientific methodology based upon sound conclusions is not in fact mere speculation in disguise.

3. A two-pronged test relating to the admissibility of expert testimony has arisen: first, that there is a generally accepted causal link in the scientific community to the evidence offered; and second, that the validity of the methodology employed to establish that causal connection must likewise be generally accepted in the medical community.

Appearances:

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Jack M. Hartman, Esq.*, Counsel for Defendant*

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OPINION

Walker, P.J., January 16, 2002

Background

On January 2, 1997, the plaintiffs, Stephanie, Michael and Brandon Kuhn initiated this negligence suit against the Chambersburg Hospital and Dr. Michael Grossberg. The plaintiffs allege that the defendants were negligent in the treatment of Brandon Kuhn during a prolonged epileptic seizure (at 13 months of age) and that negligence resulted in his development of Pervasive Developmental Disorder (PDD). The matter was scheduled for a jury trial.

By opinion and order dated March 10, 1999, this court excluded the proposed testimony of Dr. Gerry Stefanatos, a neuropsychologist, who was prepared to testify regarding a causal connection between the seizure and the PDD. The court also excluded the proposed testimony of Dr. Richard Bonaforte regarding the standard of care of emergency room physicians. Chambersburg Hospital's subsequent motion for summary judgment was granted.

The succeeding trial against Dr. Grossberg resulted in a hung jury and plaintiffs subsequently listed the matter for retrial.

Following a June 5, 2001, pretrial conference, this court entered an order allowing the parties to submit letter briefs revisiting the issue of the admissibility of Dr. Stefanatos' testimony. By opinion and order of July 25, 2001, this court accepted Dr. Stefanatos as an expert witness. However, the court required an evidentiary hearing to determine if the methodology employed by Dr. Stefanatos which led to his conclusion of a causal connection between the seizure and the PDD is generally accepted by the scientific community.

Discussion

Dr. Stefanatos received his Doctor of Philosophy at Oxford University (equivalent of a Ph.D. in the U.S.) and is currently Director of the Cognitive Neurophysiology Laboratory and Director of Clinical Trials at the Moss Rehabilitation Research Institute in Philadelphia where he works in a research capacity. (N.T., Transcript of Proceedings of Hearing to Qualify Expert, October 1, 2001, pp. 4-5, 17.) Additionally, Dr. Stefanatos sees private patients for neuropsychological evaluations.

The particular methodology Dr. Stefanatos employed to evaluate Brandon, and the primary tool upon which he is prepared to base his conclusion regarding a causal link between Brandon's seizure and the eventual development of PDD, is called Steady State Auditory Evoked Potentials. Dr. Stefanatos testified that he uses this methodology in research but not with his private patients. (N.T., p.18.)

These potentials are described as an electro-physiological method to ascertain the basis of speech and language disorders in children which are elicited in the brain in response to a sensory stimulus. (N.T., p. 6.) In Dr. Stefanatos' words, "They can be derived in any sense from modality, vision, hearing, some audiosensory system and they are the neurophysiological responses produced by populations of cells in the brain and then can be recorded using special techniques from the scalp." (N.T., p. 6.)

Further elucidation of this methodology was elicited on direct examination of Dr. Stefanatos as follows:

> Q: Some of us are familiar with the electroencephalograms, which put electrodes in the scalp and record information from the brain. Is the technique similar to that?
>
> A: Yes, it is very similar. In fact, the signals, these evoked potentials, are embedded within the EEG so the recording methods are very similar. But there are special techniques that are used to abstract that signal from the EEG.
>
> Q: So this is information that's inside the EEG but you have to go deeper to get it, would that be fair?
>
> A: Yes, in essence, the EEG is a measure of more general electrical activity and what we are interested in is recording provoked responses elicited by a particular sensory system.
>
> Q: You say by a particular sensory system. In this case we're talking about speech and language. Can you recall techniques or the technique of evoked potentials used on those areas of the brain?
>
> A: Yes, they can look at auditory function, auditory function related to speech and language and then techniques can also look at higher aspects of language processing as well.

(N.T., pp. 6-7.)

Admission of expert testimony is within the discretion of the trial court. Blum v. Mertrell Dow Pharmaceuticals, Inc., 705 A.2d 1314, 1319 (Pa.Super.1997) (holding that plaintiff's proffered expert testimony regarding causal link between ingestion of Bendectin and birth defect was not admissible under Frye standard, and plaintiff's failure to present admissible expert testimony on causation barred recovery).

> [T]he complex, confusing and possibly misleading details of scientific testimony do not so readily lend themselves to accurate assessment by even the most discerning jury. Much of such testimony is sophisticated and difficult to comprehend, and an analysis of the scientific validity of the methodologies underlying the testimony is simply beyond the capabilities of most lay persons. Therefore, the gatekeeping role of the court, far from detracting from the jury's function, is in fact essential to it: scientific methodology and conclusions must initially be scrutinized by the court to ensure that what might appear to the jury to be science is not in fact speculation in disguise. Properly supported scientific evidence, however complex, can then reach the jury for its consideration, while material whose complexity merely hides its unreliability is winnowed out.

Blum, 705 A.2d at 1325.

"For expert evidence to be admissible, it must meet the standard enunciated in Frye [Frye v. U.S., 293 F. 1013 (D.C.1923)] and adopted by our Supreme Court in Topa, which is that '[a]dmissibility of the evidence depends upon the general acceptance of its validity by those scientists active in the field to which the evidence belongs.'" Checchio v. Frankford Hospital-Torresdale Division, 717 A.2d 1058, 1060 (Pa. Super. 1998) (citing Commonwealth v. Topa, 471 Pa. 223, 231, 369 A.2d 1277, 1281 (1977).

"[T]he analysis to be applied in answering the question of whether the Frye/Topa admissibility criterion ha[s] been met [is] two pronged: acceptance in the scientific community of first the causal, and then the methodological relationship alleged." Checchio v. Frankford Hospital-Torresdale Division, 717 A.2d 1058, 1060 (Pa. Super. 1998).

I. Issue of causal link testimony

Dr. Stefanatos acknowledged, as a neuropsychologist, he is not permitted to make a medical diagnosis. (N.T., p. 40.) Even if he could medically diagnose, Dr. Stefanatos testified that evoked potentials are used to interpret a lack of functionality, and as such, they do not allow the tester to identify what the cause of the dysfunction is neurologically. (N.T., p. 41-42.) On cross-examination:

> Q: It's generally true, is it not, even the steady state, if there is a break in the firing mechanism or the evoked potentials that you are looking for and either by time or by sight as you have described them, they cause you to interpret them, what you are interpreting is a lack of functionality, right?
>
> A: Yes.
>
> Q: You are not by those test results able to say what the cause of the dysfunction is neurologically, are you?
>
> A: By those test results alone?
>
> Q: Right.
>
> A: No.

Dr. Stefanatos also testified that when a dysfunction is found in some part of the brain using Steady State Auditory Evoked Potentials, the most that can be interpreted from that finding is that it is either consistent with or inconsistent with findings from medical doctors derived from their physical and/or neurological exams of the patient and from laboratory tests such as MRI and/or CT scans. (N.T., p. 42-43.)

Dr. Stefanatos has testified that he cannot use the steady state auditory evoked potentials technology to determine the cause of a dysfunction. Additionally, as a neuropsychologist, he cannot make a medical diagnosis regarding a causal link between two medical conditions.

Accordingly, the burden of proving the acceptability within the scientific community of this testimony has not been met, ergo, this court cannot permit Dr. Stefanatos to testify as to a causal link between Brandon's prolonged seizure and PDD.

II. Issue of general scientific acceptance of methodology

Assuming arguendo that Dr. Stefanatos was qualified to testify as to a causal link, under Checchio, supra, the validity of the methodology used to make that causal connection must be generally accepted in the medical community.

The plaintiffs offer evidence that patients are referred for evaluation to Dr. Stefanatos by members of the medical community. Dr. Stefanatos testified regarding the nature of the referrals he receives, his subsequent evaluations and what is done with the test results, as follows:

> Q: What do they refer them to you to do?
>
> A: They (sic) are typically two kinds of activities that I do with them. ...
>
> My specialty more broadly is brain behavior relationships, and the way that I approach this is looking at both behavior and the neurophysiology that is correlated with certain kinds of behaviors.
>
> So, they would come to see me for neuropsychological evaluation which are evaluations

that examine brain behavior relationships using typically pencil and paper tests.

And then there are the evoked potential procedures which look at the neurophysiological correlates of certain aspects of processing information. ...

Q: Let's talk about these evoked potentials for a second, the ones that are similar to electroencephalograms. What do doctors, neurologists and psychiatrists, M.D.s and D.O.s, send people to you for in that regard?

A: Typically they are sent to me with a question of whether a child may have acquired epileptiform aphasia.

Q: And what is aphasia?

A: Aphasia is a loss of language, loss of speech.

Q: And the technique that you used, these auditory evoked potentials, is that the technique you also used on Brandon Kuhn?

A: Yes.

Q: What do you do once you do these tests for the medical doctors or the D.O.s?

A: Well, I describe the results and share with them an opinion as to whether or not the results are consistent or inconsistent with a particular diagnosis under consideration.

(N.T., pp. 8-10.)

This court cannot determine, based on the evidence submitted, that those evaluations are requested because of the value of the information derived particularly from the Steady State Auditory Evoked Potentials portion of the evaluation, or for the information derived from the more conventional neuropsychological evaluation testing that is done with pencil and paper.

The plaintiffs have submitted numerous scholarly writings, some of which were authored or co-authored by Dr. Stefanatos, in support of their assertion that the methodology by which Dr. Stefanatos reached his conclusion on a causal link is generally accepted in the scientific community. (See the plaintiffs' exhibits, nos. 4, 5, 6, 8, 9, 10.) While these writings are impressive for their demonstration of considerable expertise in the area of Steady State Auditory Evoked Potentials, they fail to establish, for the court, that the methodology is more than a research topic or an experimental testing modality at this point in time.

Dr. Stefanatos' own testimony supports the court's conclusion in this matter. For example, when asked if studies of auditory evoked potentials are accepted in any other institutions for diagnostic purposes, the witness testified, "Well, certain kinds of evoked potential, auditory evoked potential studies, are performed in virtually every academic neurology department in the country. There are only a few that can perform the potentials that I helped to develop (sic) the steady state auditory evoked potentials." (N.T., p. 26, emphasis added.)

When asked where the other facilities are that can perform this particular test, Dr. Stefanatos could only name one, The Children's Hospital in Boston. (N.T., p. 26.) In an apparent effort to bolster their argument for general scientific acceptance, plaintiffs offer the fact that the persons performing the tests in that facility are affiliated with Harvard University. (N.T., p. 27.) However, affiliation with Harvard does not inform the court that the methodology is generally accepted in the scientific community for more than experimental purposes.

When asked to identify other facilities or institutions that are performing this particular test, Dr. Stefanatos was only able to identify two where it is no longer used. (N.T., p. 27, emphasis added.) Given the fact that the technology has apparently been available for a number of years, identifying only two centers that currently perform the study and others that used to perform it is a paucity of evidence in support of the plaintiffs' assertion of general scientific acceptance.

This court does not question the sincerity of Dr. Stefanatos' testimony, nor does it attempt to diminish his considerable expertise in the area of steady state auditory evoked potentials and his contribution to scientific research; however, for the reasons stated above, this court will not qualify Dr. Stefanatos to testify regarding a causal link between Brandon Kuhn's prolonged seizure and PDD.

ORDER OF COURT

January 16, 2002, following an evidentiary hearing to determine if the methodology employed by Dr.

Stefanatos which led to his conclusion of a causal connection between the seizure and the pervasive developmental disorder is generally accepted by the scientific community, a careful review of the letters submitted by counsel and of case law, this court will not qualify Dr. Stefanatos to testify regarding a causal link between Brandon Kuhn's prolonged seizure and the pervasive developmental disorder.