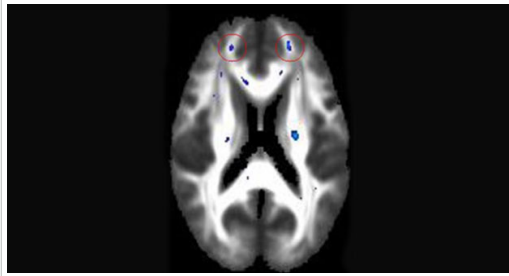


Medical advances sharpen battles in brain injury cases

PI attorneys see promise in 'diffusion tensor imaging'

By: Pat Murphy October 5, 2017



Personal injury attorneys say advances in medical technology have provided them with an array of new tools to prove the existence and extent of traumatic brain injuries.

"We've come from the stone age to the space age," says Boston attorney Douglas K. Sheff, who focuses his PI practice on representing victims of traumatic brain injury

Yet defense attorneys see plenty of opportunity to challenge the reliability and meaning of new tests, such as diffusion tensor imaging, in the inevitable "battle of the experts" that occurs in brain injury cases.

Boston's Grace V.B. Garcia for one considers "very weak" the current technology used by plaintiffs' attorneys in attempting to confirm the existence of traumatic brain injury.

"The problem from a defense perspective is that many of the complaints that plaintiffs have in these cases are more subjective, and there is not the objective testing for them," says Garcia, immediate past president of the Massachusetts Defense Lawyers Association.

Diffusion tensor imaging

The newest technology making an appearance in the courtroom is diffusion tensor imaging, which uses MRI technology to analyze the movement of water molecules in the white matter of the brain.

"The amount of water that accumulates in a particular area is related to damage in the brain," explains Kenneth I. Kolpan, a personal injury lawyer in Boston who concentrates on TBI.

Robert T. Karns, a traumatic brain injury attorney in Middleton, Rhode Island, sees DTI as a breakthrough since it can detect abnormalities in the brain that don't show up in a standard MRI, like axonal shearing.

Axonal shearing is an injury to the long, slender nerve fibers that carry electrical impulses from neuron cells in the brain. A break in the communication between neuron cells manifests itself in brain injury impairing functions such as memory and communication skills.

Karns says defense attorneys initially achieved some success across the country in excluding DTI results through *Daubert*/*Frye* challenges, but that courts generally are admitting that evidence now.

"I know in Connecticut, Massachusetts and Rhode Island we'll get it in," Karns says.

The technology, then and now

When Robert T. Karns first started his personal injury practice in 1974, X-rays and CAT scans could reveal fractured skulls and larger bleeds of the brain, but they couldn't detect lesser injuries.

The advent of magnetic resonance imaging in the 1970s opened the door to detecting brain injuries that didn't involve major bleeding, he says. The newer functional MRI measures brain activity by detecting changes associated with blood flow.

"An fMRI is performed by asking a patient to do tasks like reading, tapping their fingers or looking at pictures," says Karns, a lawyer in Middleton, Rhode Island. "It changes the delivery of blood and oxygen to the brain. We can see defective areas of the brain from that."

Advances in nuclear medicine have produced the positron emission tomography scan. A PET scan is an imaging test that uses a radioactive die injected into the patient to show

Garcia anticipates seeing more cases in which plaintiffs use a DTI test in support of their claims. Some courts have allowed the evidence while others have not, she says, adding that defense attorneys “absolutely” need to raise *Daubert* challenges and not concede admissibility.

“[A DTI test] reveals microscopic damage, but that can be challenged in that it’s not necessarily correlating to an injury, to a functional impairment,” Garcia says. “Just because it shows something microscopically may be altered, you can’t correlate that necessarily [to an event], and there’s no testing that will say that will correlate with this.”

But Boston personal injury attorney David P. Dwork is convinced of the value of DTI in establishing brain injury.

“That’s been scientifically recognized as being an accurate and objective tool that can identify microscopic damage to the brain,” Dwork says. “Before, we had a really hard time imaging microscopic damage because the CAT scan and MRI look more at the gross pathology of the brain, like hemorrhages and brain shift.”

Dwork suggests DTI may be a game-changer when it comes to substantiating mild traumatic brain injury.

“It’s not like a severe traumatic brain injury where you can visibly see motor deficits and impaired neurological functioning,” Dwork says. “The problem from the plaintiff’s point of view is that these people look normal and can function and speak normally, yet they have these impairments that keep them from functioning the way they used to. How do you convey that to a jury?”

problems with brain mapping and brain function.

Newer still is the single-photon emission computerized tomography scan. A SPECT scan is another nuclear imaging test that creates 3-D pictures showing which areas of the brain are more or less active.

“Many of these [tests] can help identify whether there’s an abnormality, but they often can’t tell you when it occurred,” says Boston defense attorney Grace V.B. Garcia.

For that reason, Garcia says it is critical for defense attorneys to fully explore whether the symptoms or deficits a plaintiff complains of might date from before the accident upon which a brain injury claim is based.

Garcia says she routinely looks at a plaintiff’s educational and employment records.

“There’s always issues that maybe their memory was always poor or that they never were great at math and still aren’t good at math,” she says.

Garcia acknowledges that there are those who truly suffer severe traumatic brain injury. But she questions the validity of many TBI claims.

“They think that if they add in a head injury that the value of their case is increased,” Garcia says. “The problem is that it takes away from those who have suffered a true TBI.”

Boston attorney William L. Keville Jr. chairs the Trial Tactics Committee for the Massachusetts Defense Lawyers Association. Because causation is usually an issue in brain injury cases, the best way for defendants to protect themselves is to assemble their expert team — typically consisting of a neurologist, neuropsychologist and psychiatrist — early on in the case.

“You really want those experts to help direct discovery,” Keville says. “The key is to gather every piece of medical

evidence that exists as soon as possible, including CT scans, MRIs and emergency room reports where [the patient's] level of consciousness at both the scene of the accident and the hospital is discussed."



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— Grace V.B. Garcia, Boston



Reliability

Faith A. LaSalle, who practices in Providence, Rhode Island, says she's defended a half-dozen brain injury suits in the last five years and has yet to be involved in a case in which the plaintiff sought to admit the results of a DTI.

LaSalle is skeptical of the reliability of some of the newer tests touted by the plaintiffs' bar and maintains that the MRI remains the most important diagnostic tool in brain injury cases. But she warns attorneys to be alert to whether an MRI result comes from a newer model scanner that uses a stronger magnetic field to produce images.

"The more sophisticated the MRI machine, the more accurate the picture you're getting of the brain. The more accurate picture you're getting of the brain, the more helpful it is for the medical doctor to make an accurate diagnosis and to give an opinion on causation," she says.

MRIs of plaintiffs claiming mild traumatic brain injury often show nothing abnormal, bolstering a defendant's contention that there was no injury, LaSalle notes.

Defense attorneys also need to be alert to the fact that adolescents and teens often claim that they suffer symptoms of mild traumatic brain injury that mirror conditions unrelated to an accident, she says.

"From a defense perspective, the MRI is an objective diagnostic test that can bolster a defense that [the plaintiff's] symptoms are not related to a car accident, but are really related to the fact that she's just being diagnosed with attention deficit disorder," LaSalle says.

LaSalle further warns that plaintiffs' attorneys often claim "black dots" that show up on an MRI scan constitute objective evidence of a brain injury. According to LaSalle, the black dots signify the presence of hemosiderin, or iron deposits related to bleeding. She says it's important for the defense to call a neuroradiologist as an expert to explain that such results are inconclusive as to whether they signify a particular brain injury from a particular event.

"The truth about these iron deposits is that once you get them, you've got them for life," she says. "So if you injured your head in a soccer game five years before and never had an MRI done, [then] you get in a car accident and the MRI shows some dots in the frontal area where you claim you were hit, that is not conclusive because you can never tell the age of some of these abnormalities."

According to Sheff, plaintiffs' attorneys need to know when and how to use cutting-edge medical tests such as diffusion tensor imaging in combination with the more familiar MRIs, CAT scans and PET scans to build an "insurmountable wall of evidence" in their client's case.

"You as the lawyer have to be the leader of the orchestra for this 'grand symphony' of evidence," Sheff says, noting that lawyers too often make the mistake of relying on a single test result to establish a traumatic brain injury.

"If you rely on one test, [the defense] can try to attack that one test. But when three or four tests all say the same thing, it's really tough for the defense to poke holes in a case," he says.



"We've come from the stone age to the space age."

— Douglas K. Sheff, Boston



Blood tests

The next breakthrough attorneys are on the lookout for is a type of blood test being developed by researchers in the U.S. Army and University of Florida investigating blast injuries suffered by soldiers in Afghanistan.

"They developed a blood test that detects even the mildest form of TBI in terms of looking for a certain protein that is released in the blood stream when the injury happens," Karns says. "Now it's being converted [for use in detecting] mild civilian TBI cases, sports injuries and shaken baby syndrome."

Karns has no doubt that the defense bar will fight the admissibility of such blood test evidence.

"It'll be a battle, but there's a good basis for it," Karns says.

But Garcia questions the ultimate value of blood tests for brain injuries.

"Currently, there are no reliable biomarkers that exist to diagnose the severity of a TBI," Garcia argues. "Even once they're able to diagnose that, will it tell what the severity is and whether or not it would resolve?"

Dwork acknowledges there may be other problems with blood tests.

"These serum biomarkers are not necessarily specific to brain injury," he says. "You can have elevated biomarkers and serum levels for other reasons. [Researchers are] trying to pin it down to specific brain injury tissue damage."

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