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Physicians Helping Attorneys Helping People™

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Newsletter

August 2023

This Month's Question

Can being rear-ended result in atrial fibrillation?

PMLCtex Answer

We were recently involved in a case where a woman in her mid-60's was rear-ended while stopped at a traffic light. The SUV that she was driving was struck by a passenger car traveling at 45 miles per hour per. No brakes were deployed and no other vehicles were involved.

At the time of impact, the client reported transient, sharp pain involving her neck and lumbar spine. She also noted chest discomfort from the compression of her seat-belt. While speaking with local law enforcement, she complained of severe headache. EMS was summoned. Her blood pressure was elevated enough that she called her husband to bring her to a local Emergency Department.

In the Emergency Department, her systolic (upper #) blood pressure ranged from the 180's to 210 with diastolic (lower #) pressures from 90 to 115 (normal is approx. 120-130/70-85). Her heart rate was normal to mildly elevated (80's to 90's). X-rays of her C-spine and L-spine were normal as was the CT of her brain. Her blood pressure responded to medication

quickly. However, prior to discharge, the heart monitor revealed atrial fibrillation with a resulting heart rate into the 150's. The client was admitted for observation. Atrial fibrillation is a heart rhythm disturbance where the atria (upper heart chambers) simply quiver as opposed to contracting rhythmically. The atrial fibrillation resolved overnight and she was discharged the next evening.

The question here is whether the collision caused the abnormal heart rhythm. The client followed up with a cardiologist the next week. The cardiologist quickly pointed out that the surge of adrenaline was likely a factor causing the atrial fibrillation. More strongly connected, in his opinion, was the cardiac contusion caused by the seat-belt impact.

The client's troponin (a cardiac enzyme) level was elevated in the Emergency Department but quickly returned to undetectable. When elevated, this enzyme reveals myocardial (heart muscle) injury. Heart attack was ruled out by the fact that the client's troponin level came down precipitously as well as the absence of EKG changes. Additionally, there were no symptoms suggestive of a heart attack. Her chest discomfort was muscular and felt to be related to the seat belt.

Simply put, a contusion is a common bruise. A cardiac contusion is a bruise of the heart muscle. Heart muscle fibers are injured and the damaged fibers bleed. Enzymes like troponin are released which can be measured in the blood. The peak level reached and the duration over which the levels persist help differentiate between a simple contusion (precipitous drop) vs. the more extensive damage from a heart attack causing prolonged enzyme elevations.

Seat belt injury is a common cause of cardiac contusion. However, symptoms vary and may easily be attributed to simple chest muscle contusion. A key difference is that cardiac contusion can also cause abnormal heart rhythms as well as heart failure in rare cases. Even microscopic bleeding causes inflammation. Depending upon the extent of bleeding and resulting inflammation, how the injured tissue reacts can vary greatly.

Symptoms are usually mild and self-limited. They include chest discomfort, shortness of breath and even changes in one's EKG may occur. The right side of the heart is more commonly involved than the left. Not coincidentally, right sided heart attacks commonly result in heart rhythm disturbance. Therefore, rhythm disturbance is no real surprise after cardiac contusion.

Cardiac contusion has been seen to result in various rhythm abnormalities including atrial fibrillation. Slowing of electrical conduction has also been observed in various forms. So, heart rate may be slowed rather than increased.

It's important to note that in some cases of traumatic cardiac contusion abnormal heart rhythms, including atrial fibrillation, may become a chronic problem.

This case is yet another example of how a Medical/Legal Consultant can increase case value and save attorney time. By revealing a medically plausible explanation for the client's rhythm disturbance, an injury that might have been overlooked was identified. Whether the client's atrial fibrillation becomes chronic or not remains to be seen. It is now recognized as a result of the auto accidents.

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- Independent Record Reviews
- Assessment of case validity regarding medical issues
- Referral to appropriate expert medical witnesses
- Medical Research
- Facilitation of communication with clients, families, professionals and service & governmental agencies

- Case Coordination
- Facilitation of communication with treating doctors
- Table-side deposition assistance or deposition question preparation

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