

PPIC Closed Claim Case Review

Head Injuries and Intracranial Bleeds: When to Scan

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Abstract

Strokes are a major public health concern, with more than 750,000 new strokes occurring each year in the United States. It is the third ranked cause of death behind heart disease and cancer, and the leading neurologic cause of long-term disability. Strokes are either ischemic (not enough blood in the brain) or hemorrhagic (too much blood in and around the brain). It is important to obtain immediate—but different—treatment for both types. An ischemic stroke requires doctors to find and remove any obstruction and restore blood flow to the brain. Surgery may be necessary to treat a hemorrhagic stroke and to prevent another one. Head injuries or traumatic brain injuries typically cause hemorrhagic strokes. Blood vessels in the brain burst, causing intracerebral bleeding, pressure, and tissue damage. The brain tissue's blood supply beyond the bleed can be significantly slowed or cut off, which also causes damage.

Overview

A 51-year-old male was transported from his workplace to the ER following a syncopal episode. The patient had hit the back of his head on the floor when he fell, causing a superficial laceration and a few moments of unconsciousness. He reportedly awoke in his normal mental state and had no seizure type activity during the syncopal episode.

The patient stated that his medical history included atrial fibrillation (a-fib), and that he had actually undergone ablation approximately one year prior. He also said that he had suffered an intracranial bleed related to a supratherapeutic INR approximately a year and a half prior, but denied being on any anticoagulants at the time of the examination.

The EMS workers reported that, when when they arrived at the scene, the patient was alert and oriented to person, place. He was initially diaphoretic, but this had resolved prior to presenting to the ER. He was admitted into the ER with a blood pressure of 149/97, pulse of 106, respirations of 18, and temperature of 97.5. His pulse oximetry was 97% on room air. He scored a 15/15 on the Glasgow Coma Scale (GCS).

A review of systems showed that the patient was in a-fib, but he denied having palpitations or anginal symptoms. He also denied shortness of breath, weakness, headache, or other neurologic complaints. He had normal strength, coordination, and mentation, cranial nerves 2-12, and PEARL (pupils are equal and reactive to light) with no focal deficits noted. The 12-lead ECG was interpreted as a-fib with a rate of 115 beats per minute, with no ST segment elevations or depressions, normal QT intervals and normal axis. His blood work was within normal limits.

The treating ER physician (defendant) recommended that the patient be seen by a cardiologist, but the patient would only agree to see his own MD. The defendant then contacted the patient's cardiologist. They decided that the patient would be released to his spouse under instruction that she would drive him to an appointment with the cardiologist that day. The defendant ordered a 90 mg subcutaneous injection of Lovenox because of the patient's history and current presentation of a-fib, then discharged him at 9:20 a.m. in stable condition.

Instead of seeing the cardiologist, however, the patient unexpectedly left his home approximately 40 minutes after discharge from the hospital per his wife's report. Law enforcement officers found the claimant alone in his car on the interstate leading in the direction of his doctor. EMS workers on the scene noted that he was unresponsive when found. The patient was life-flighted back to the ER at approximately 4:15 p.m.

Vital signs included a blood pressure of 178/134, heart rate of 139, respirations of 36, pulse oximetry of 99%, and temperature of 98.9. The patient's right arm was curled up and posturing. His pupils were non-equal and sluggish to light. Staff discussed transferring him to another hospital where he would be able to receive the critical care that he needed, but his condition declined before this could take place. He finally required intubation. It was noted that his Glasgow Coma Score was a 3/15 and his left eye was fixed and dilated. The initial CT scan confirmed that the patient had suffered a hemorrhagic stroke. He died the next day.



Expert Opinion

Experts identified two primary issues related to a patient with a possible brain injury: the failure to perform a CT scan, and the administration of Lovenox, a blood thinner, to a patient with a potential intracranial bleed.

The plaintiff's expert opined that the standard of care required the ER physician to obtain a CT scan before discharging the patient, so the initial physical examination conducted was incomplete. It was also this expert's opinion that the injection of Lovenox was contraindicated.

The defense retained two experts. The first opined that it was unclear if the claimant had lost consciousness prior to or after his fall. He thought it unlikely that the claimant had a syncopal episode related to atrial fibrillation, and instead felt that he had passed out from hitting his head. This expert also felt that the administration of Lovenox was contraindicated, as the claimant had suffered a head injury when he fell.

The last expert for the defense felt that the case was problematic and that he could not defend the treating physician in whether the standard of care was met. His opinion was that because the claimant reportedly had been unconscious for a "few minutes," a CT scan should have been performed. He also believed that the administration of Lovenox was not indicated and would be very hard to defend.

This case settled for a confidential sum in the six figures.

Discussion

Emergency rooms will continue to admit many patients with documented head injuries. The majority of them will be treated and released with no lasting sequelae events. A few will be assessed and identified as having risk for complications. These few patients should be admitted for observation or at least kept in the ER for a regulated period of time for regular neurological testing, as would be done if the patient's head injury occurred in the hospital. A small group will also present with head injuries that have caused lasting brain damage and physical disability either because of the initial injury or secondary complications. Finally, there are those patients that will die as a result of the traumatic injury and/or complications that they have suffered. Best practices should be used when assessing the patient with head injuries to determine the most appropriate plan of treatment.

Risk Prevention Strategies

1. Standardized clinical ER "when to scan" policies: All patients who have had a reported loss of consciousness, nausea/vomiting, seizure, diffuse headache, and history of coagulopathy should have a CT scan when presenting with a head injury (Ma & Cline, 2004). This includes those that are alert and oriented with a GCS of 15/15.
2. Standardized lengths of observation: Patients who present following head injuries should be monitored for periods of time similar to those injuries that occur to inpatient individuals. Example—checks done every 15 minutes x 1 hour; then every 30 minutes x 1 hour; and then every 1 hour x 4 hours. Of course there would be exceptions to this for young healthy individuals with no prior risk factors.
3. Develop formal facility policies and procedures, coordinated by a medical director, to address when and how to complete neurological exams.
4. Use of tools such as the National Institute for Health and Clinical Excellence's (NICE) "To scan or not to scan" to help in deciding if a patient meets criteria for needing a CT scan following a head injury (National Institute for Health and Clinical Excellence, 2008).
5. Thorough documentation of changes in a patient's level of strength in extremities, changes in mentation, and changes in pupil response time. Vital signs are not as good an indicator of status changes unless the brain stem is affected. In that case it would not be uncommon to have respiratory, pulse, and blood pressure changes.

Summary

Head injuries or traumatic brain injuries are unique to the individual. The varying degrees of damage require personalized courses of treatment and direction of care. The CDC reports that approximately 1.4 million people sustain brain injuries every year in the United States (Scott, 2008). Close to 80% of those 1.4 million are treated and subsequently released from the ER, but the other 20% are not as lucky. Approximately 50,000 people die each year as a result of brain injuries and another 90,000 experience permanent disabilities, leaving them dependent on others (Scott, 2008).

To decrease the number of adverse events following head injuries, all patients with a GCS of 14/15 or less should require a CT scan. In addition, all patients with a GCS of 15/15 should be required to have a CT scan if there any reported loss of consciousness, seizure activity, amnesia, nausea/vomiting, or a history of coagulopathy or prior brain bleed. These groups should also be observed in the ER for at least six hours so that a complete neurological exam can be completed prior to releasing the individuals to home with a reliable companion who can continue the observation for up to a twenty-four hour period.

References

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This course is designed to improve clinical outcomes and promote patient safety by reviewing specific standards of care, avoiding adverse outcomes, and best practices related to aortic dissection, acute coronary syndrome, and pulmonary embolus. The majority of PPIC claims related to the big three mirror those of the national level with misdiagnosis being the most common complaint. Dr. Olshaker will discuss these concerns and provide valuable evidenced-based education and clinical resources that will improve patient outcomes. This course is presented in three distinct modules.

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This course is designed to improve clinical outcomes and promote patient safety by reviewing specific standards of care, adverse outcomes, and best practices related to three important topics:

1. Patient choice cesarean: is there a standard of care?
2. Medico-legal issues in OB/GYN ultrasound
3. Ethical and legal challenges of decision-making during pregnancy: intact and impaired capacity

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