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Risk Management Review

Patient Suffers Aortic Dissection While Waiting for Emergency Care

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Introduction

When medical risk management professionals analyze cases with poor outcomes, they can sometimes identify what is referred to as the "Swiss cheese" effect. This describes a situation in which several failures have occurred that individually would likely not result in patient injury; however, when the "holes" align, a major failure in patient care can occur. This interesting case capably illustrates this phenomenon.

Facts

The case occurred at a small, rural hospital outside a major city. The hospital did not contract directly with an emergency medicine group; rather, they contracted with an emergency medicine staffing agency. The agency contracted directly with emergency physicians and assigned them to their various hospitals' emergency departments (EDs). MedPro insured the staffing agency.

The patient in this case was a 45-year-old Caucasian female who had a medical history of obesity, hypertension, and hyperlipidemia. She previously had been prescribed metoprolol and lisinopril, but was not taking either medication because she "didn't like to take pills." She had visited the hospital's ED in November of Year 1 due to vaginal/abdominal pain. At that time, her blood pressure (BP) was 175/111 mmHg. She was discharged without treatment and advised to contact her primary care physician regarding her elevated BP.

She again presented to the ED in April of Year 2 due to left-sided back pain. At that time, her BP was 155/99 mmHg. After being evaluated, she was discharged with pain medication. She returned 6 days later at 9:20 p.m. with chest pain (which had commenced that day). She also had back and lower abdominal pain, which had increased in severity over the week. Her BP was 225/124 mmHg.

A physician assistant (PA) who was the ED's triage officer promptly saw the patient. After doing an initial assessment, the PA ordered an ECG and appropriate lab studies and assigned the patient an acuity level of 2. As was normal, the PA had no further involvement in the case, including not ordering any medications or discussing this patient with either of the two physicians staffing the ED at that time (Dr. G and Dr. M).

The patient was promptly placed in a treatment room, and Nurse B (the charge nurse) assigned her to Nurse S. The ECG was performed at 9:56 p.m. and reported to Dr. G. He did not order further cardiac testing, as he was satisfied that the patient was not suffering from a cardiac event at that time. He also did not feel that a physician needed to see the patient immediately. Because of the rotation of physicians in the ED, patients were not assigned to a specific doctor; the assigned nurse was expected to bring any abnormalities to a physician's attention.

At 11 p.m., the patient continued to report 8/10 pain and had a BP of 231/128 mmHg. She was alert and oriented. At that time, Dr. M went off duty and Dr. H arrived for an 11 p.m. to 7 a.m. shift. Dr. H was a family physician who had previously practiced family medicine for several years; subsequently, he had completed an emergency medicine residency and recently had begun practicing emergency medicine. This was Dr. H's first shift at this hospital, where he would be the only physician from 3 a.m. to 7 a.m.

When Dr. H came on duty, Nurse S discussed the patient with him. She explained that she was uncomfortable with the patient's BP. Dr. H acknowledged this information but did not immediately see the patient. Because of this, Nurse S also discussed her discomfort with Nurse B, who said he would do what he could to have the patient evaluated. After that, Nurse B asked Dr. H to see the patient and was told that he would.

At 1 a.m., Dr. H still had not seen the patient. After being updated by Nurse S, he ordered metoprolol (5 mg) and potassium, which was administered at 1:15 a.m. Nurse S never reported back to Nurse B about the effects of the medications, whether Dr. H had seen the patient, or anything else. Nurse B had noted that the ED was very busy.

Nurse S continued to document the patient as stable but remained concerned about her BP, which was 223/138 mmHg at 2:25 a.m. The patient's BP lowered to 195/121 mmHg by

3:15 a.m. but elevated to 205/126 mmHg by 4:50 a.m. Nurse S documented that she had advised Dr. H, who had no new orders and still had not seen the patient. Nurse S also did not update Nurse B further.

At 5:00 a.m., the patient suffered a grand mal seizure, which progressed to a full cardiac arrest. Resuscitation commenced but was unsuccessful, and she was pronounced dead at 5:38 a.m.

A subsequent autopsy stated that the cause of death was a ruptured aortic aneurysm, but both plaintiff and defense cardiothoracic experts opined that she had actually died from an aortic dissection (an important distinction because dissection has a better chance for survival if treated promptly and appropriately).

A malpractice lawsuit commenced against Dr. G, Dr. H, the hospital, and the staffing company (for their direct liability and their vicarious liability for their employee physicians). The hospital and the staffing company settled the case by each making a payment in the mid-range. The physicians were dismissed as a result of these payments. Defense costs for the staffing company were in the high range.

Discussion

A review of this case shows that several factors contributed to the unfortunate outcome — some circumstantial and some related to performance.

The staffing agency was criticized for placing a largely inexperienced physician on his own for several hours in an ED where he had never worked previously. Although it is unknown if Dr. H expressed any reservations about this assignment to the agency, he testified in his deposition that he was uncomfortable with being alone on his first night at this facility. The agency did not have any sort of orientation protocol in place, either for new physicians or physicians commencing a new assignment.

The agency also did not do any monitoring of patient volumes at their client locations to ensure they were providing adequate physician coverage. As mentioned previously, this was a busy night in the ED (73 patients were there at 11 p.m., followed by another 18 between 11:00 p.m. and 3 a.m.). The hospital was also criticized for this failure (however, nothing indicates that the nursing staff was inadequate).

Both parties were also criticized for their failure to have a surge protocol in place, which would

provide additional physician resources if circumstances required them. A plaintiff's expert testified that, at a minimum, Dr. H saw 16 patients during his 8-hour shift (presumably the most acutely ill). The expert speculated that part of the reason Dr. H never saw this patient was that he was simply overwhelmed by these 16 patients and the others who were waiting.

The nurses' actions were also criticized. The plaintiff's nursing expert felt that Nurse S's communication with both Dr. H and Nurse B was inadequate given her well-founded concerns. The nursing expert also felt that after Nurse S alerted Nurse B, he should have been more aggressive in his communication with Dr. H — and Nurse B should have elevated the matter through the chain of command if he did not receive an appropriate response.

The criticism of Dr. G was less severe. He assumed the care of the patient when she came in at 9:20 p.m. and had been triaged. He reviewed the ECG shortly after its completion and was satisfied that the patient's condition was not an ST-segment elevation myocardial infarction. Therefore, additional cardiac testing was not indicated at that time. However, he never laid eyes on the patient while she was under his care, and no handoff communication occurred when Dr. H assumed her care at 11 p.m.

Similarly, the direct criticism of Dr. H was modest. However, his failure to see a patient with these symptoms for over 6 hours in the ED was not excusable. Further, one dose of metoprolol was ordered and administered, but when Nurse S requested a second dose, it was not ordered because Dr. H said he would see the patient. He never did.

In general, it was observed that the communication among Nurse S, Nurse B, and Dr. H was clearly short of optimal.

It is noteworthy that the likelihood of the patient having an aortic dissection was extremely remote; a study of 9.5 million ED visits found that aortic dissections occur in about 1 out of every 12,200 visits.[1] One could argue that even if either physician had seen and thoroughly worked up the patient, an aortic dissection would have been — at best — at the bottom of a differential diagnosis, thereby offering some justification for missing it. However, that argument is largely neutralized by the fact that neither physician ever laid eyes on the patient.

In the end, the cardiovascular surgery experts generally agreed that if the patient had been evaluated, she could have been in surgery by 3:30 a.m. They also agreed that if she had been promptly and properly diagnosed, and

her BP brought under control, she had as high as a 90 percent chance of surviving the surgery and a 52 percent chance of surviving for 5 years.

Summary Suggestions

The following suggestions may be helpful for healthcare organizations and staffing agencies that support patient care in busy ED settings:

- Carefully monitor patient volume trends to ensure that adequate physician to patient ratios are maintained. In this case, the plaintiff and defense experts generally agreed that for patients who are assigned a Level 2 acuity, 2.5 patients per physician per hour would be on the high end of what is considered reasonable.
- Provide orientation and appropriate training for new physicians or physicians new to the ED before they are left solely in charge.
- Make sure ED surge protocols are in place to respond to acute large influxes of patients or patient volumes that exceed appropriate ratios.
- Empower direct care nurses to elevate patient care issues when they perceive a threat to patient safety. Develop thorough chain-of-command protocols and ensure that nurses know when and how to activate them.
- Foster and facilitate strong communication between direct care nurses and collaborating physicians. Include communication and teamwork concepts as part of training exercises and drills.
- Develop patient handoff policies and protocols (including expectations for verbal and written communication), and ensure that appropriate handoffs occur during shift changes.

Conclusion

The practice of emergency medicine is challenging because of some of its unique characteristics — a fact that will not change. The proper deployment and support of ED personnel is essential to maximize patient outcomes. This is accomplished through careful planning, the provision of adequate resources, and an institutional commitment to the highest levels of efficacy and patient safety.

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Endnote

[1] Alter, S. M., Eskin, B., & Allegra, J. R. (2015). Diagnosis of aortic dissection in emergency department patients is rare. *The Western Journal of Emergency Medicine, 16*(5), 629–631. doi: https://doi.org/10.5811/westjem.2015.6.25752