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Risk Management Review

Physician Fails to Act on "Red Flags," Resulting in Death of Patient From Myocardial Infarction

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Introduction

In 1999, the Institute of Medicine published a groundbreaking report on medical errors titled *To Err Is Human.* In the intervening years, the healthcare community has made significant progress identifying and remediating medical errors at both the institutional and individual provider levels. However, as this case illustrates, work to improve safety and prevent errors remains.

Facts

The patient was 56 years old when he came under the care of Dr. M, a MedPro-insured internal medicine specialist. He had been a patient of the multispecialty practice for the previous 18 years. In his earlier years with the practice, he was essentially healthy and came in for minor illnesses and annual physicals to renew his commercial driver's license. However, over time, he began to suffer numerous orthopedic issues that affected his neck, back, and both knees. These problems were largely attributed to his work as a logger and heavy equipment/large truck operator.

In May of the year that the patient started treating with Dr. M (Year 1), he had no particular concerns — he was there for his annual physical. At that time, he was 6' 3", 266 lbs., and had a blood pressure of 140/88 mmHg. During that visit, the "risk assessment" portion of the patient's health record was left blank, despite a history of mild hypertension and untreated hyperlipidemia. The patient also had a family history of cardiac issues. His father had coronary artery bypass grafting and died of a myocardial infarction (MI) in his sixties, and his mother (who was still living) had heart issues and chronic elevated cholesterol.

The patient returned in December of Year 1 with significant gastric reflux, and Dr. M prescribed esomeprazole. The patient returned in

April of Year 2 with continued reflux and heartburn. Because the patient's symptoms weren't responding well to medication, Dr. M referred him to Dr. A, a surgeon within the practice.

After evaluating the patient, Dr. A recommended a Nissen fundoplication as a more permanent solution to the patient's discomfort. As part of the preoperative process, an electrocardiogram (ECG) was performed, which a cardiologist interpreted as showing left ventricular hypertrophy (LVH) and a probable prior MI. In response to this report, Dr. A recommended to Dr. M that the patient have an echocardiogram. Dr. M read the ECG and concluded that LVH was likely, but not a previous MI. Thus, he did not order any further cardiac workup and cleared the patient for the surgery.

Dr. A performed this procedure in June of Year 2, and the surgery was successful and without incident. Following the surgery, the patient continued to complain of heartburn, chest pain, and hiccups; however, his reflux had largely resolved.

In April of Year 3, the patient returned to Dr. M with a "squeezing sensation felt retrosternally, which has steadily worsened since the surgery." Dr. M attributed the patient's discomfort to recurring reflux, which was again treated with medication. Dr. M asked the patient to return in 10 days for follow-up. The patient did not return as requested, but he did return in June for his annual physical. The documentation for that visit noted "some stomach issues, acid reflux, gas," but the exam was described as normal.

The patient saw Dr. A (the surgeon) in August of Year 3 with the same complaints as well as dysphagia. An endoscopy was performed, which showed no evidence of reflux, and the symptoms were attributed to the patient's eating habits. Dr. A reported this information to Dr. M, and neither doctor did any further follow-up.

In May of Year 4, the patient called the practice for an appointment and stated it was for "the worst heartburn I've ever had." He was scheduled with Dr. M for 2 days later. The following day, the patient went out turkey hunting and did not return home; he was found deceased in the woods. A subsequent autopsy concluded that the patient died as a result of "lethal cardiac rhythm due to acute cardiac ischemia due to severe three vessel coronary artery atherosclerosis with recent and remote myocardial infarction."

A medical malpractice lawsuit was brought against Dr. M; at the doctor's request, the case was settled with a payment in the very high

range. Because this case was not in litigation for long, defense costs were in the mid-range.

Discussion

Three different internal medicine experts reviewed this case; however, none of the experts could support Dr. M from a standard-of-care standpoint. Their opinions were very similar; they all felt that the patient had straightforward symptoms of evolving heart disease, which Dr. M should have investigated and then acted on.

Sometimes cases can be defended under a theory of legal causation (i.e., even if appropriate treatment had occurred, it would not have affected the outcome). However, an expert cardiologist opined that the patient could have had a normal life expectancy — approximately another 21 years — if he had received appropriate treatment for his heart disease.

The question remains as to why Dr. M didn't recognize and act on these symptoms. Although simple neglect may have been involved, it's likely that other factors also were at play.

Human factors research has identified cognitive biases that can affect providers' evaluation processes and decision-making. Three of these biases — anchoring, confirmation, and/or diagnosis momentum — may have contributed to Dr. M's repeated errors in this case:

- Anchoring occurs when a provider "locks onto" a particular diagnosis without considering other possible explanations for the symptoms.
- Confirmation refers to the tendency to focus on information that confirms an initial diagnosis or to manipulate information to fit preconceptions.
- Diagnosis momentum is a failure to consider the possibility that the initial diagnosis was incorrect. This bias should be considered when the patient is receiving the correct treatment for the assumed condition, but they are not improving.

As in this case, these biases are especially likely to occur when more than one medical condition is involved (e.g., gastric reflux and cardiovascular disease). A good way to minimize the influence of these biases is to develop a differential diagnosis (similar to what is commonly done in emergency medicine), and then prioritize evaluating and treating the most serious possible conditions.

Overconfidence bias also may have contributed to the poor outcome in this case. Dr. M seemed to trust his own interpretation of the

preoperative ECG over the interpretation of the reviewing cardiologist. In this circumstance, it may have been prudent to seek a third opinion or to go ahead and order the echocardiogram. It is also noteworthy that neither Dr. A nor Dr. M followed up with the patient following the August Year 3 appointment to see whether dietary changes relieved the patients' symptoms.

Finally, the last and maybe best chance to avoid the patient's death was in May of Year 4, when he called the practice reporting significant heartburn. We can reasonably speculate that if a provider had evaluated the patient that day (either at the clinic, an emergency department, or an urgent care), he may have had an ECG that revealed the dysrhythmia in time to take action.

Summary Suggestions

The following suggestions may be useful to consider when diagnosing and treating patients who have symptoms that might indicate any number of conditions:

- Gather thorough information about the patient's history of the present illness/condition, past medical history, family medical history, and personal/social history.
- Be mindful of the potential for cognitive biases, which may affect the accuracy of clinical judgment. Learn about various techniques to address biases, such as situational awareness, metacognition, perspective-taking, emotional regulation, and partnership-building.
- Develop differential diagnoses, and prioritize the most serious potential conditions until they can be reasonably ruled out.
- Consider adopting the diagnostic team framework to support clinical reasoning and decision-making. When disagreements in diagnosis occur, err on the side of caution with further consultation and/or appropriate testing.
- Utilize evidence-based guidelines, clinical pathways, and standardized processes to ensure consistency and support high-quality care.
- Evaluate how clinical decision support systems and other technologies, such as electronic health record alerts, can support the diagnostic process and team communication when correctly implemented.

- Engage in diligent follow-up when treating patients who have persistent symptoms or conditions that are difficult to resolve. Reconsider differential diagnoses of returning patients and patients who show no signs of improvement.
- Make sure that individuals who are responsible for answering phone calls and electronic messages are sufficiently knowledgeable and well-trained on triage protocols to ensure patients receive appropriate attention.

Conclusion

Perfection in the delivery of healthcare services is unrealistic, but the application of proven risk management techniques can minimize diagnostic errors and treatment-related injuries. In addition, ever-evolving improvements in technology and pharmaceuticals, combined with a constantly growing knowledge base, will further contribute to optimal patient outcomes.