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Topic: Adherence to the CVL protocol

Scenario; in what way did the patient care or environment lack? Is this a common occurrence?

A 64 year old patient with a history of DM type 2 was admitted to the ICU because of an episode of DKA. During his stay at the hospital a left subclavian line was placed and utilized. After several days of fluid and electrolyte replacement as well as insulin therapy, the patient recovered and was deemed stable for discharge by his physician. His nurse for that shift explained to the student nurse that was with her that she knows the discharge process like the back of her hand because she's been working as a nurse for 20 years. The student watched as the nurse used a suture removal kit to quickly remove the patient's central line and then applied pressure with sterile gauze to the insertion site. The nurse asked the student to continue applying pressure while the nurse verified the length of the catheter and that the catheter tip was still intact. As the student was holding pressure, she wondered to herself if the patient should've been placed supine during the CVL removal. She also thought she remembered learning that the patient was supposed to hold their breath while it was removed but assumed she was mistaken, because surely the nurse would've done so if it was necessary. After a few minutes of holding pressure, the patient began to complain that he suddenly felt short of breath and that his chest was hurting. A pulse ox was applied and his oxygen saturation was at 89%. The patient was diaphoretic and said that he felt extremely dizzy. The nurse immediately recognized that the patient was experiencing an air embolism and applied oxygen while placing the patient in the left lateral position and putting the bed in reverse trendelenburg. She called for help and contacted the patient's physician who placed a STAT order for anticoagulation and thrombolytic therapy. Because of quick interventions, the patient recovered and afterward the student asked the nurse if the patient should've been supine during the removal. The nurse stated that she had never heard of that protocol and that she almost always removed her patients' central lines while they were sitting up and said that no one had ever corrected her technique. When asked if the patient should've held their breath, she replied "I asked him to hold his breath, didn't I? Oh I don't know…this was my 5th shift in a row and I've just been so exhausted lately."

What circumstances led to the occurrence?

The nurse was not up-to-date on current CVL protocols and was unaware that the patient should've been supine during the removal. This could be due to a lack of continuing nursing education in the unit. It could also be due to the nurse being set in her old ways, considering that she has been a nurse for 20 years. The student also could've helped prevent the situation had she felt more confident in her nursing knowledge and questioned the nurses' actions. It seems like there was also a lack of accountability and/or knowledge in the unit, considering that other coworkers had previously seen the nurse remove central lines like this and never corrected her technique. Another contributing factor to the patient developing an air embolism was that the nurse was tired and not thinking clearly. It seems that some underlying

factors involved might be that the unit is short staffed or nurses could be experiencing burnout and calling in frequently.

In what way could you measure the frequency of the occurrence?

Patient charts could be reviewed to determine the amount of air embolisms occurring on the unit within a given amount of time, and what they were caused by. Charge nurses could also conduct surveys of the RNs in the unit and quiz them on CVL removal protocol to see how often patients were placed supine. Charge nurses could also randomly observe nurses while removing central lines to see how often they were correctly placed in the supine position.

What evidence-based ideas do you have for implementing interventions to address the problem?

Having mandatory education sessions to refresh nurses on the most up-to-date CVL removal protocol. Continuing education is crucial in the nursing profession, as policies and procedures are constantly changing to give our patients the best quality care possible. Another idea would be to place informational posters around the unit reminding them about the correct protocol when it came to CVL removal. Furthermore, it could be a skill that the nurses on the unit are required to “check off” with their charge nurse. The charge nurse could observe each of the RNs remove a CVL by a certain deadline to make sure that they are complying with hospital policy. Another idea would be to have a zero tolerance policy in place for air emboli occurring due to improper CVL removal.

How will you measure the efficacy of the interventions?

Efficacy could be measured by monitoring the amount of air emboli that have occurred on the unit due to CVL removal after mandatory education and observation of nursing skills has taken place. Since a zero tolerance policy would be put in place, any air emboli that have occurred directly after removal of a central line would show that the interventions have not been effective. Though the ideal goal is to have zero air emboli occur, we could still compare the number of patients who have developed air emboli after CVL removal before and after the interventions that we implemented. This would tell us if our interventions were at least leading us in the right direction.