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Case Report

Accurate diagnosis in SOAP documentation in the Hybrid documentation (EMR +manual) and courage in taking decisive action for patients with post-infarction ventricular septal rupture (PI-VSR) depend on the nursing staff's understanding: A Case Study

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Abstract

Management of postinfarction ventricular septal rupture (PI-VSR) necessitates rapid multidisciplinary collaboration. Nurses, providing 24-hour care and the first to observe any sudden patient changes, interpret these changes as a basis for subsequent clinical judgments. These judgments, documented in the SOAP (Subjective Objective Assessment and Planning) format within the patient's Electronic Medical Record (EMR), are crucial for interdisciplinary clinical decisions. However, integrating manual notes with EMR documentation may result in missing data during analysis. Effective communication is essential, requiring not only knowledge but also the courage to overcome fear of judgment. A knowledgeable nurse, well-versed in PI-VSR treatment, can make informed decisions and contribute to recommendations regarding intra-aortic balloon pump usage. This, of course, is contingent upon the availability of appropriate facilities, infrastructure, and systems.

Key words: ventricular rupture; nurse speaking ;decision ehr

Introduction

Postinfarction ventricular septal rupture (PI-VSR) occurs in 0.3% of myocardial infarction (MI) patients (Jones et al., 2014). A shorter time between MI and surgery correlated with better survival, as seen in Coskun et al.'s study. The interval between MI and PI-VSR was 8.7 days, and between PI-VSR and surgery, it was 23.1 days. Hospital mortality was 32%, with surgery recommended after stabilization unless the patient was in cardiogenic shock (Coskun et al., 2009). Nurses play an important role in decision-making, particularly in Cardiovascular Intensive Care Units (CVCUs). Within this setting, nurses make critical decisions alone, in teams, or in collaboration with physicians or surgeons, utilizing effective communication methods like Situation, Background, Assessment, and Recommendation (SBAR) implemented in the SOAP method, integrated into the Electronic Medical Record (EMR) for streamlined care provision. The Joint Commission's International Patient Safety Goal underscores the significance of nurse-physician communication, as up to 65% of significant adverse events stem from inadequate collaboration (De Meester et al., 2013). This case study highlights how effective communication among nurses, cardiologists, and surgeons is pivotal in successfully treating PI-VSR patients.

Case and Discussion

The Cardiovascular Intensive Care Unit (CVCU) in Riau Province Hospital rarely utilizes Intra-Aortic Balloon Pump (IABP) intervention. However, in this case, a patient was transferred from the medical ward to CVCU after one week of hospitalization. Three weeks prior to admission, the patient complained of chest pain, initially assuming it was gastritis, alleviated temporarily by Omeprazole and ketorolac administered by his wife, a nurse. Despite no significant medical history and an active lifestyle, the patient's pain worsened daily. He sought emergency care on July 19, 2023, due to loss of appetite, nausea, weakness, and left-sided chest pain. In the emergency department, the patient received ondansetron, sucralfate syrup, and ketorolac. An ECG was performed during the night shift but was not reviewed or documented in the medical record, focusing instead on gastrointestinal symptoms. On July 20, 2023, the patient was transferred to the medical unit and finally underwent an ECG. The cardiologist diagnosed him with dyspepsia, acute kidney injury, ventricular septum defect, and anteroseptal STEMI. Due to CVCU occupancy, the patient was advised bed rest, cardiac diet, and specific medication. On July 21, 2023, during the evening shift, the patient was transferred to CVCU, and the nurse

documented acute pain and decreased cardiac output. An Echocardiogram revealed Postinfarction Ventricular Septal Rupture (PI-VSR), evident from the patient's cyanotic nail fingers, pale skin, and tachypneic breathing, confirming the need for critical care.

On July 22, 2023, a CVCU nurse conducted an arterial blood gas test to measure blood pH levels for Mr. H. He reported severe breathlessness and a drastic drop in blood pressure to 60/40. The recorded blood pH was 7.14. One nurse promptly informed the CVCU physician about the deteriorating condition, who then relayed the information to the cardiologist, stating that the patient was now experiencing decompensated heart failure. The cardiologist advised initiating an Intra-Aortic Balloon Pump (IABP) intervention on Monday, starting intubation, addressing the metabolic acidosis, and transferring the patient to the ICU. The conditions for mechanical support utilization were specified as arterial lactate (>2.0 mmol/l), cardiac index (CI ≥ 2.2 l/min/m2), and systolic blood pressure (80 or 90 mmHg) (Obradovic, D et al., 2021). A nurse supervisor, present at the CVCU during this time, was informed of the situation and suggested a different approach. The nursing supervisor recommended contacting the cardiologist again to explore the possibility of initiating IABP on Sunday. The charge nurse expressed concerns about the unavailability of a cardiac surgeon for IABP on the same day, emphasizing that a major medical emergency like myocardial infarction requires the presence of a cardiothoracic surgeon and team, making it seemingly impossible to proceed on Sunday. The CVCU nurse, considering the circumstances and the day being Sunday, expressed hesitance and suggested waiting until Monday for the IABP intervention.

The nurse supervisor emphasized the urgency of the situation. However, the nurse hesitated to contact them, fearing it would disrupt the cardiologist or cardio surgeon's weekend and might lead to reprimands. The nurse supervisor took charge, reaching out to both the cardiologist and cardiothoracic surgeon. The cardiothoracic surgeon promptly approved the procedure and provided instructions to the anesthesiologist and operating room nurse for IABP preparation in the CVCU. While IABP can be performed anywhere, the CVCU in Riau Province Hospital had never previously facilitated this intervention. The nurse supervisor's remarkable ability to efficiently communicate through SBAR with the cardiothoracic surgeon amazed the CVCU nurses. Conducting IABP in the CVCU, an unusual practice, was made possible through clear dialogue.

Despite the patient's unfortunate passing on July 30, 2023, a week post IABP intervention, his wife expressed gratitude to the nurse supervisor, believing her efforts extended her husband's life. The nurse leader strongly encouraged staff to voice their opinions in a collaborative environment, recognizing that silence can contribute to communication breakdowns and ultimately compromise care quality. Nurses have often expressed low confidence in their communication skills (Morrow et al., 2016).

Discussion

The evolution of MI to PI-VSR

Postinfarction Ventricular Septal Rupture (PIVSR) typically manifests within 1 to 14 days following an Acute Myocardial Infarction (AMI), peaking at 24 hours and 3 to 5 days after AMI (Wilson & Horlick, 2016). The patient's wife mentioned her husband had no prior ailments except occasional stomachaches radiating to the chest, treated with stomach medicine. Consequently, the precise time of the MI remains unknown. Swift diagnosis and treatment might prevent the transition from myocardial infarction to VSR. Over time, the incidence of PIVSR has decreased from 1-3% to the current 0.2-0.5% due to advancements in reperfusion (Goldsweig et al., 2018). Despite its rare occurrence, PIVSR carries a remarkably high fatality rate.

Surgical or Non Surgical

The American College of Cardiology Foundation/American Heart Association (ACCF/AHA) guidelines strongly advise immediate surgery for PIVSR patients, irrespective of their hemodynamic condition (Levine & Bittl, 2016). Conversely, The European Heart Association (EHA) guidelines for acute myocardial infarction management suggest considering delayed surgical intervention for patients with stable hemodynamics post active treatment due to the risk of fragile myocardial tissue bleeding (VandeWerf, 2003). Unfortunately, in this case, the patient passed away during the wait for stable hemodynamics after the IABP procedure. In 1988, Locki et al. first reported percutaneous ventricular septal rupture closure using an interventional transcatheter closure (TCC) method for PIVSR (Lock et al., 1988). However, this hospital does not currently offer this intervention.

IABP via Femoral Or SCA

In these cases, immediate operation post PI-VSR diagnosis is recommended to halt further hemodynamic decline. However, considering this patient's compromised hemodynamics, prioritizing the use of an intra-aortic balloon pump (IABP) is deemed essential. Over the last four decades, IABPs have demonstrated a substantial history of effectively supporting patients with decompensated heart failure. The IABP comprises two components: a catheter housing a polyurethane balloon and a mechanical drive system (pump). This system, when connected to the catheter, manages the balloon's inflation and deflation in sync with the patient's cardiac cycle. The balloon expands during the heart's rest phase (diastole), facilitating the movement of blood volume into the coronary sinus (Morrow et al., 2016). Traditionally, IABPs are inserted via femoral artery access, a procedure associated with notable drawbacks. Primarily, it requires bed rest, preventing mobility. Additionally, there's a considerable risk of limb ischemia, reported at an incidence of 5% to 19% (Tremper, 2006). Given these challenges, alternative methods using the subclavian artery (SCA) or axilla have been explored. The SCA method is advantageous, as the artery usually lacks atherosclerosis even in patients with substantial peripheral artery disease. Despite its technical complexity and time-intensive nature, the SCA method overcomes the fundamental limitations of femoral implantation (Umakanthan et al., 2012). In this particular case, the surgeon opted for femoral artery access for the IABP procedure.

Information extraction in the hybrid era (paper to paperless health record)

The transition from paper-based to electronic medical records (EMR) has been conducted gradually. However, certain crucial information like informed consent, ECG examination, and patient education still cannot be effectively incorporated into the EMR. Consequently, essential data might go unnoticed if the nurse solely relies on the EMR. In a specific instance, the patient's ECG printout was done by the night shift nurse but wasn't interpreted or acted upon by the doctor or nurse, leading to untreated ST elevation. Despite the potential to revolutionize clinical documentation, electronic health records (EHRs) remain a laborious, time-consuming, and error-prone process. Clinicians grapple with complicated demands and disjointed user interfaces for information retrieval and documentation. These challenges are particularly exacerbated in the emergency room (Hanauer et al., 2015).

SOAP need to be read

The cases presented highlight notable discrepancies and gaps in medical and nursing diagnoses, suggesting that the healthcare staff responsible for actions and documentation often fail to review prior nurses' or doctors' records. Consequently, critical EKG instructions documented by the previous nurse in the SOAP EMR, intended to be accessed by subsequent healthcare staff, including doctors and nurses of the next shift, were overlooked. This delay in accessing the diagnosis and subsequent intervention proved detrimental to the patient and their family. Unfortunately, this issue is prevalent in various healthcare settings. The use of SOAP documentation in nursing, designed as an evaluation tool for nursing care, ideally should reflect the critical thinking and rationale underlying clinical judgments and actions but often falls short of this standard.

Nurse ability in making nursing dianosis

Nursing diagnoses are pivotal for directing interventions; hence, precise formulation is essential. Nurses' proficiency in analyzing and synthesizing patient information should underpin their diagnoses. In this specific case, the nurse in the medical unit initially diagnosed a nutritional deficit, despite the SOAP records already indicating impaired cardiac output. This misalignment persisted across the subsequent two shifts, despite the nurse administering heart disease-related treatments like troponin checks and Vascon administration, with plans to transition to CVCU. This underscores a deficiency in critical reasoning skills, resulting in irrelevant nursing diagnoses.

Courage to speak up

Further research highlights nurses' hesitance to confidently assert treatment plan changes in the face of rude or hostile team members (Raica, 2009). In this specific instance, the nurse refrains from reaching out, fearing repercussions that could disrupt the cardiologist's or cardiac surgeon's weekend and potentially lead to reprimands. Nurses perceive speaking up as an act demanding courage, associated with feelings of futility, resignation, and helplessness (Schwappach & Gehring, 2014). The dominating influence of physicians often makes nurses feel marginalized and silenced (Malloy et al., 2009). Another study observed that outspoken nurses risk losing their authority, facing stigma, and experiencing workplace isolation (Gardezi et al., 2009). In this case, the nurse chooses caution over advocating for the patient, ultimately facing negative labels of incompetence and lack of authorization.

Conclusion

Postinfarction ventricular septal rupture (PI-VSR) can manifest between 1 to 14 days after an AMI, carrying a high fatality rate despite its rare occurrence. Surgical intervention is crucial for stable hemodynamics post active therapy to mitigate potential cardiac tissue hemorrhage (Banez). In cases of poor hemodynamics, intra-aortic balloon pumping (IABP) can be considered preoperatively alongside extracorporeal membrane oxygenation (ECMO) to enhance post-MI-VSD survival rates by delaying surgery.Nurses, providing continuous patient care, play a pivotal role utilizing the SBAR or SOAP technique, utilizing clinical judgment and decision-making skills for effective communication with healthcare professionals, including doctors and surgeons. Recommendations are not limited to physicians; nurses equally possess the right to voice recommendations and concerns.

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