IDENTIFYING THE FACTORS FOR ACUTE CARDIAC DETERIORATION FOR ESTABLISHING A NEW RECOGNITION PROTOCOL

AN INTEGRATED REVIEW OF LITERATURE

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BACKGROUND

Cardiac arrest is one of the most common clinical deteriorations found in critical care settings. For this study, cardiac arrest was defined as a sudden cessation of cardiac function, precipitated by pulseless electrical activity or asystole. Of the patients who suffer from inpatient cardiac arrest, 80% exhibit clinical signs of cardiac deterioration before the heart’s electrical system dysfunctions. This evidence suggests that there is sufficient time to prevent a potential in-hospital cardiac arrest from occurring. The early detection of cardiac arrest antecedents can significantly affect patient outcomes.

RESULTS

VITAL SIGNS

A majority of patients have at least one abnormal vital sign 1-4 hours before arrest, and most patients show at least one severely abnormal sign. Detectable abnormal vitals were found even earlier with blood pressure; systolic blood pressure decreased at 8-20 hours preceding arrest. These values became dramatic at 5-10 hours before cardiac arrest. Noticeable changes in heart rates began at 4 hours and became more prominent at 2 hours pre-arrest. Respiratory rates were maintained at a high level with wide fluctuations until shortly before cardiac arrest. Body temperatures usually indicated a hypothermic state pre-arrest. EKG RHYTHMS

EKG rhythms are also valuable sources for detecting cardiac arrest. QRS prolongation, atrial tachyarrhythmias, and isorhythmic dissociation presented more than 1 hour prior to cardiac arrest. PR prolongation was observed more than 1 hour prior to cardiac arrest, and ST segment changes, P wave axis changes, and bradyarrhythmias were late changes, presenting only in the last 10 minutes.

DEMOGRAPHICS

Demographic considerations are non-modifiable, predisposing factors that lead to cardiac arrest. Multiple sources state that the individuals 65 years old and 19 years are more at risk for cardiac arrest; men are also at an increased risk for cardiac arrest. It is important for the nurse to recognize increased risk with these patients, especially in conjunction with other preceding signs and symptoms of arrest.

PRE-ARREST PROTOCOL

Early Warning Scores (EWS) were shown not to have a significant effect on preventing cardiac arrests, while Rapid Response Teams (RRT) may/may not be associated with fewer arrests. Further, it was found nurses are under-assessing and under-documenting their patients. Under-documentation and under-assessment can lead to errors in treatment or missing signs that precede adverse events. Thus, in order to improve a patients’ quality of life, nurses must improve their own standard of practice.

FIGURE 1: The relationship between vital signs and mortality in cardiac arrest patients

FIGURE 2: Time of onset of ECG changes prior to in-hospital cardiac arrest

FIGURE 3: Theoretical Model for pre-arrest detection and nursing protocol intervention

DISCUSSION AND IMPLICATION

The most pressing implication for this study is nursing awareness and education. Above all else, a nurse needs to understand their patient and be attune to their physiologic status to detect changes in vital signs or a patient’s EKG. Most hospital protocols require nurses to round on each patient, at least, every hour. This study shows that changes in most patients status occurs hours before cardiac arrest. Because the most optimal protocol is yet to be determined, it is imperative that the nurse recognize their own patients baseline. Recognizing the changes in a patient baseline can allow a nurse to intervene and prevent arrest. It is a patient experiencing signs of cardiac arrest it is important for nurses to be educated properly in Basic Life Support (BLS) to prolong life when the preceding signs and symptoms are not detected.

FURTHER RESEARCH

No significant or succinct results have been produced on nursing protocol within cardiac arrest. Current nursing research is asymptote, but does not have definite results. Thus, more research needs to be conducted. Future research studies should be conducted to determine the effectiveness of Rapid Response Teams and Early Warning Scores. Having research on this subject can ameliorate patient care and improve mortality rates.

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