Abstract

Central line access to administer medication and fluid volume replacement is a problem in Waynesboro Hospital’s critical care unit (CCU). Certain medications are very irritating to peripheral veins and are best administered through a central line. Patients who are critically ill often require many medications for an extended time, making them candidates for central lines instead of peripheral lines. Central lines are used long-term as intravenous accessible for these types of situations. An issue arises because Waynesboro Hospital has limited central line access due to the limited availability of physicians to place these lines.

Methods/EBP

A literature review, guided by the Johns Hopkins Nursing Evidence-based Model was conducted to determine the appropriate use of central lines. Steps of this process included the identified PICO, literature search and review, and analysis using the Johns Hopkins Evidence-based Practice Nursing Model. This study is using evidence-based practice to answer the clinical question in the PICO format.

**PICO Question**

- **P** - critically ill patients in the critical care unit
- **I** - utilizing central lines for medication and fluid volume replacement
- **C** - peripheral lines
- **O** - use of central lines in the ICU to decrease complications of infiltration, medication associated tissue injury, and other complications related to peripheral IV access

**Literature Search**

Articles were collected through CINAHL and PubMed databases supplied through the Pennsylvania State University Library System. Keywords used in the first round of searches included critical care unit, intensive care unit, central catheters, and peripheral catheters. Revision of keywords included the addition of infection, medication administration, fluid replacement, complications, and risks. With the revision of keywords, searches revealed twenty-two articles on CINAHL and one hundred seventy-one articles on PubMed. After review of the articles, nine articles were deemed relevant.

**Figure #2**

(Summary of Literature Review)

Results/Conclusions

The purpose of this study was to find which device would provide the best evidence-based care to critically ill patients in the intensive care unit. Findings from the review of literature answer our PICO question proving that central venous catheterization is preferred over peripheral venous catheterization for multiple reasons. Not only does it provide less complications to the already compromised patient, it allows nurses to administer medications, give total parenteral nutrition (TPN), and monitor hydration status. Central venous lines are a more feasible for long-term use. Peripheral accesses are more appropriately used in patients admitted to medical-surgical floors who are not in critical condition and have shorter hospitalizations. Peripheral lines also carry fewer risks than CVCs. However, the benefits outweigh the risks for central line access compared to peripheral line access. Our goal as nurses is to implement evidence-based practice to improve patient outcomes.

Recommendations

After thorough and extensive research, we recommend that central line access be used for any admissions to critical care units. Central lines have proven valuable for patients in critical condition for a multitude of reasons. Peripheral lines are more suitable for patients admitted with a less critical status and who are anticipated to have short hospitalizations. More research will need to be done to determine the criteria for central or peripheral access. Once indications and criteria are determined, this information would be suitable to generalize for hospital protocols.

Bibliography