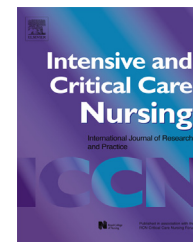




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ORIGINAL ARTICLE

Learning to manage vasoactive drugs—A qualitative interview study with critical care nurses

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KEYWORDS

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Competence;
Critical care;
Lifelong learning;
Patient safety;
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Vasoactive drugs

Summary

Objective: Being a nurse in an intensive care unit entails caring for seriously ill patients. Vasoactive drugs are one of the tools that are used to restore adequate circulation. Critical care nurses often manage and administer these potent drugs after medical advice from physicians.

Aim: To describe the experiences of critical care nurses learning to manage vasoactive drugs, and to highlight the competence required to manage vasoactive drugs.

Research methodology/setting: Twelve critical care nurses from three hospitals in Sweden were interviewed. Qualitative content analysis was applied.

Results: The theme “*becoming proficient requires accuracy, practice and precaution*” illustrated how critical care nurses learn to manage vasoactive drugs. Learning included developing cognitive, psychomotor, and effective skills. *Sources for knowledge* refers to specialist education combined with practical exercises, collegial support, and accessible routine documents. The competence required to manage vasoactive drugs encompassed well-developed *safety thinking* that included being careful, in control, and communicating failures. *Specific skills* were required such as titrating doses, being able to analyse and evaluate the technological assessments, adapting to the situation, and staying calm.

Conclusion: Learning to manage vasoactive drugs requires a supportive introduction for novices, collegial support, lifelong learning, and a culture of safety.

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Implications for Clinical Practice

- Opportunities to build cognitive, affective and psychomotor skills in the role as specialist nurse are important.
- Collegial support, practice, lifelong learning and a safety culture are essential in relation to manage vasoactive drugs.
- A pedagogical progressive introduction with mentors may facilitate safe learning.
- Standardised methods based on clinical evidence could dramatically reduce the incidence of adverse events linked to changeovers of syringes.

Introduction

Critical care nurses (CCN) care for seriously ill patients, and their key competencies relate directly to the complexity of the work and the acute, critical conditions of patients in an intensive care unit (ICU) (Bench et al., 2003). Competence can be defined as functional adequacy and the capacity to integrate knowledge and skills into attitudes and values in specific contextual situations of practice (Meretoja et al., 2004). Critically ill patients require vigilance and complex care from a team of highly skilled health professionals, including nurses. Accordingly, these nurses also need to possess specialised knowledge, skills, and experience (American Association of Critical-Care nurses, 2008). A CCN is responsible for identifying, monitoring, assessing, executing, and evaluating nursing interventions adjusted to individual needs. They must also be able to integrate technology with safe patient-centered care, alongside the assessment of a patient's physical, psychological, and social needs (Häggström et al., 2012). Technology is strongly embedded in the ICU setting (Häggström et al., 2013). Monitoring medical equipment and interpreting results means that the CCNs must constantly evaluate a patient's condition and be capable of changing the nursing management accordingly. Abnormal cardiovascular signs can quickly develop, accelerate and prove to be fatal without skilled nursing observation and intervention (Urden et al., 2014). Patients in need of intensive care often exhibit deterioration in their vital signs and require life-support. One of the tools that is used to restore adequate circulation is the intra-venous infusion of vasoactive drugs. These drugs are administered when fluid therapy is insufficient to maintain adequate blood pressure and tissue perfusion (Vincent and Weil, 2006). Patients who require infusion of vasoactive drugs should be cared for in ICU units (Miller, 2001). The ultimate goals of haemodynamic therapy in shock are to restore effective tissue perfusion and normalise cellular metabolism (Hollenberg, 2011). Maintaining systematic pressure is essential for adequate tissue perfusion (Holmes, 2005). Vasoactive drugs should be selected on the basis of increasing a patient's blood pressure or increasing cardiac output (Beale et al., 2004). Examples of commonly used vasoactive drugs used in an ICU include adrenaline, dopamine, noradrenaline, phenylephrine and dobutamine (Hollenberg, 2011; Morrice et al., 2004). These drugs are very potent, and the consequences of incorrect use or excessive doses can be devastating and even lethal for patients (Von Rahden, 2014).

During the administration of vasoactive drugs, reflex bradycardia may occur, which can lead to a decrease in cardiac output as a compensatory mechanism. Other side effects of vasoactive drugs include tachycardia,

tachyarrhythmias such as supraventricular and ventricular arrhythmias and ischaemia of the heart muscle (Hollenberg, 2011).

The ability to detect and examine changes and treatment factors to assess the risk of an adverse drug effects plays a central role in the daily work of a CCN (George et al., 2010). Critical care nurses are formally trained and competent in the use and management of equipment and must retain facts about mechanism of action, side effects and possible contraindications (Miller, 2001).

Learning is a process and not an outcome. This study was based on the assumption that people learn best when given the opportunity for social interactions with others and that knowledge is the development of human resources and a benefit to patient safety. These assumptions are inspired by the socio-cultural theory of learning. Various tools can be used to facilitate individual needs related to learning such as effective communication, computers and checklists (Säljö, 2014). Competence is a relevant concept in both health care and nursing education. Critical care nurses are competent and formally trained in the use of equipment and the administration of continuous intravenous vasoactive medication. It is important that CCNs possess knowledge and skills to reduce likelihood of patients experiencing adverse haemodynamic responses due to infusion alterations. As far as we know, there has been limited research about how CCNs learn to manage vasoactive drugs. Therefore, the aim of this study was to describe the experiences of critical care nurses learning to manage vasoactive drugs and to highlight the competence required to manage vasoactive drugs.

Method

Ethical considerations

The study was reviewed and approved by the Ethics Council at Mid Sweden University (Dnr 2014/437). The participants were provided with both written and verbal information about the study's purpose and method. They were informed that their participation was voluntary and that they could at any time, terminate their participation without any negative outcomes. The data was treated confidentially and were stored safely at Mid Sweden University. No unauthorized persons had access to the data.

Design

In order to obtain a deeper understanding of the experiences of CCNs with respect to vasoactive drug management, a qualitative research design was used. The data was collected

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