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AN EVALUATION OF INTRAVENOUS ANTIBIOTIC PREPARATION AND ADMINISTRATION BY STAFF NURSES OF KENANGA 4C MEDICAL WARD IN SULTANAH BAHIYAH HOSPITAL

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ABSTRACT

The aim of the present study is to assess the appropriateness of parenteral antibiotics preparation and administration by nursing staff in the medical ward of Sultanah Bahiyah Hospital. Utilizing direct observation as the principal method of study, the present investigation also utilized interview method for triangulation purpose. The study was conducted at Kenanga 4C Medical Ward of Sultanah Bahiyah Hospital, Alor Star for a period of two months. Based on the statistical analysis conducted, the results show that most of the nurses did not adhere to the standard practices in which the overall error rate found was 97.3%. Among the four variables that were observed, infusion rate was found to be the highest in terms of error committed (53.4%) followed by concentration errors (25.5%) and mode of IV administration (11.3%). Meanwhile, diluents compatibility for reconstitution and dilution recorded error rates of 7.8% and 2.0% respectively. As a conclusion, the findings of the study have provided evidence that preparation and administration errors do occur in almost all of the parenteral antibiotics administered to the patients involved in the study. Those errors may affect the drug efficacy and may lead to emergence of microorganism resistant. Furthermore, it will expose patients unnecessarily to adverse drug events. Thus, a guide to preparation and administration of intravenous antibiotics drugs should be made available and be distributed to each ward to reduce such errors.

CHAPTER 1

INTRODUCTION

Antibiotics are widely being prescribed to treat infections, both in the community and hospital settings. During an emergency, parenteral antibiotics are preferred compared to oral routes since the former can provide a rapid response (Bruce & Wong, 2001). Parenteral antibiotic usually needs to be prepared immediately before administration. This may involve dissolving of powder, dilution or transfer of injection fluid from the original vial or ampoule into a container (Wirtz et al., 2003). These processes present multiple opportunities for errors. Consequently, understanding the basic principles of anti-infective therapy is important to ensure optimal outcomes and to reduce selective pressure on antibiotics, which may be associated with the development of antibiotics resistance (National Antibiotic Guideline, 2008).

It is very important to identify the sources of medication errors such as an administration error because they may lead to patient morbidity and mortality in hospitals (Philips et al., 2001). However, the risk of error in drug administration practised by nurses and medical staff is almost unknown. In Malaysia, most IV drugs are prepared by the staff nurses, compared to North America whereby preparation of IV drugs is centralized and carried out by a group of professionals such as specially trained pharmacists (Tissot et al., 1999). Administration errors have accounted for 34% of errors according to a large study conducted in medical and surgical units in the United States (Bates, 1995). Intravenous preparations have been previously identified as a high risk area for such errors as stated by Cada (2002) which clearly highlighted 60% of the incidence of serious and life-threatening potential adverse events in the United States arose from IV therapy. On the other hand, 40% of drugs and fluids used in a hospital are intravenously administered by different drug delivery systems (Akers, 1987).

Errors in antibiotics administration can be detrimental to patients (Hicks et al., 2006). For example, when parenteral antibiotics are not correctly diluted, the concentrations will be altered. As a result, they may not have therapeutic effects to the patients. This