Exploration of current practice and the rise of antimicrobial resistance

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NURB 361 Introduction to Nursing Research, Baccalaureate Nursing Program

Introduction

The amount of patients contracting multidrug resistant infections is increasing at an alarming rate. This is leading to a rise in poor patient outcomes including longer hospital stays, lasting residual effects, and increased mortality rates. According to the Interagency Task Force on Antimicrobial Resistance (2011, p. 5), "the medical costs attributable to the infection ranged from $18,588 to $29,069 per patient, hospital stays were extended between 6.4 to 12.7 days, and the attributable mortality of the infection was 6.5%." These outcomes influenced the selection of this topic. The purpose of this project is to explore hospital procedures currently in place to prevent the spread of these infections and to gain insight into the practices leading to their etiology. In 2013, The Joint Commission (TJC), an organization responsible for accreditation and certification of health care organizations, updated a list of goals which were created to increase patient safety.

The purpose of this project was guided by National Patient Safety Goal 07.03.01 which aims to decrease the amount of preventable healthcare problems and improve the quality of healthcare (TJC, 2013). Upon investigating relevant research, it was evident that emphasis is being placed upon better infection control policies and procedures and the proper use of antimicrobials. While these ideas have been proven effective at preventing the creation and spread of antimicrobial resistant organisms, the recommendations in the literature are not common practice in today’s hospital setting. We plan to investigate current practices being implemented in a local hospital and compare these practices with the suggestions presented in current research.

National Patient Safety Goal

NPSG 07.03.01 Implement evidence-based practices to prevent healthcare-associated infections due to multidrug-resistant organisms in acute care hospitals.

Review of the Literature

The Joint Commission has identified preventing multidrug resistant infections in hospitals as one of their National Patient Safety Goals (2013). Relationships have been identified between compliance with infection control policies and the rate of infection. According to research, proper isolation precautions, use of personal protective equipment and proper cleaning techniques have been suggested to decrease the contraction of these infections (Lee et al., 2013; Murphy et al., 2012; Ruben et al., 2013). The misuse of antimicrobial medication has also been identified as a source of multidrug resistant infections. According to the Center for Disease Control and Prevention (CDC) (2013), many patients demand prescriptions for antibiotics to treat colds and other viral infections that cannot be treated or cured by taking these medications. This demand increases development of antibiotic resistance and leads to superinfections. It has also been seen that once patients are given a prescription, there is a tendency towards misuse and noncompliance. This includes taking prescriptions that are not prescribed to them and/or saving the rest of the prescription for later use once they feel better after the initial doses.

For this reason, some bacteria are becoming resistant. The infection might not be entirely eradicated and any bacteria that survived the first few days of treatment may become resistant to treatment with that specific antibiotic. This situation is how Methicillin-Resistant Staphylococcus aureus (MRSA) and Vancomycin-Resistant Enterococcus (VRE) became so widespread. Proper prescription and use of antibiotics would significantly decrease the number of antimicrobial-resistant infections (Fagan, Machlen, Lindback, & Berild, 2012).

Grading of Evidence

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<tr>
<th>Levels of Evidence</th>
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<tbody>
<tr>
<td>Level I: Evidence from a systematic review or meta-analysis of all RCTs or evidence-based clinical practice guidelines based on systematic reviews of RCTs.</td>
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<td>Level II: Evidence obtained from at least one well-designed RCT.</td>
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<td>Level III: Evidence obtained from well-designed controlled trials without randomization.</td>
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<td>Level IV: Evidence from well-designed case-control and cohort studies.</td>
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<td>Level V: Evidence from systematic reviews of descriptive and qualitative studies.</td>
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<td>Level VI: Evidence from a single descriptive or qualitative study.</td>
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<td>Level VII: Evidence from the opinion of authorities and/or reports of expert committees.</td>
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Infection Control

Protocol
- All Intensive Care Unit patients not cultured within the last 48 hours will be cultured every Monday.
- Nurses should practice contact precautions when treating or coming into contact with high-risk patients.
- The Infection Prevention and Control Committee is responsible for assessing the trends of antimicrobial resistant infections.
- The hospital provides a guide for proper precautions for specific infections as well as a recommended length of time precautions are indicated.
- Hand hygiene is a cardinal principle of the infection control program.

Practice
- On numerous occasions, precaution signs were not hung outside of patients’ rooms when precautions were ordered.
- Many nurses did not follow proper personal protective equipment guidelines. For instance, some remove a glove finger to place an IV when a patient is on precautions.
- Multiple providers did not follow standard precautions during patient encounters.
- Some units had inadequate access to proper waste disposal areas and utilize public restrooms.
- Patients in precaution were free to roam the unit when other immunocompromised patients are in the nearby vicinity.

Clinical Implications

Upon research into the best practices and current protocols, it is our recommendation that the local hospital update their policies. They should include protocols for antimicrobial resistant infections and proper use of personal protective equipment. It may be beneficial for the organization to designate a committee that investigates practices being used at the bedside. This committee could be responsible for informing the unit managers about new policies and available staff education. Units should receive consequences for not following infection control policies. Consequences should be defined in the Employee Handbook. Reminders for the procedures and subsequent consequences should be placed on every unit. Patient education should also be provided regarding proper use of antibiotics in the form of posters and pamphlets.