



Research Proposal for a Graduation Project

Faculty of Medicine and Health Sciences

An-Najah National University

**Source pattern and antibiotic resistance of bloodstream infections in
bone marrow transplantation patients**

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Abstract

Background:

Bone marrow transplant (BMT) is standard practice for treating many malignancies. However, posttransplant fever episodes and associated bloodstream infections (BSI) are still being recorded as frequent challenges for this major therapeutic procedure.

Objectives:

This study aims to identify the source and pattern of BSI in BMT recipients. It also aims to clarify the most common organisms that are responsible for the BSI. In addition to their sensitivity and resistance status among different anti-microbes.

Methods:

This was a retrospective cohort study. It included patients who underwent BMT at An-Najah National University Hospital (NNUH) and reported at least one episode of fever during the posttransplant period at the hospital.

Results:

Out of 172 fever episodes among 136 different patients, the most frequent suspected source was unknown in a percentage of 70.3%. Followed by perm catheter and respiratory infections, in proportions of 13.3% and 7.5%, respectively. Gram-positive bacteria were isolated as the most common organism among positive blood cultures (68%), and *Staphylococcus epidermidis* was the most frequent. In contrast, gram-negative bacteria were more frequently isolated from both urine and perm catheter cultures, in a percentage of approximately 100% and 50%, respectively. *Klebsiella pneumoniae*, *Escherichia coli*, and *Pseudomonas aeruginosa* were the most common among gram-negatives in urine cultures, 33.3% for each.

Regarding resistance and sensitivity, gram-negative showed high sensitivity to amikacin (82.4%) and meropenem (76.5%). On the other hand, gram positives were highly sensitive to vancomycin (94.4%). Finally, gram-negative bacteria showed 100% resistance to ampicillin.

Conclusion:

It has been obvious that BSI in BMT patients is a reducible complication, which can be avoided by using the same adequate prophylactic protocol. In addition to more strict instructions about commitment to the antibiotic stewardship program and standard hygiene measures.

Keywords: Bone marrow transplant (BMT), antibiotic resistance, bloodstream infection (BSI).