

**A DESCRIPTION OF ANTIBIOTIC THERAPEUTIC DRUG
MONITORING TESTS APPROPRIATENESS, HOSPITAL RAJA
PERMAISURI BAINUN IN AUGUST 2010**



**DIPLOMA IN PHARMACY IN THE
FACULTY OF PHARMACY,
UNIVERSITI TEKNOLOGI MARA
PULAU PINANG**

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ABSTRACT

Introduction: Therapeutic Drug Monitoring (TDM) is one of the clinical methods that had been used in Drug Therapy. Despite the fact that it had been started in Malaysia since 1980, there are not many research had been done regarding this service. Therapeutic drug monitoring is the specific drugs measurement at timed intervals in order to maintain a relatively constant medication concentration in the bloodstream. Not all medication needs to be therapeutically monitored. Usually only those drugs that have narrow therapeutic index will undergoes TDM. Objective: The purpose of this study is to determine the appropriateness of antibiotic therapeutic drug monitoring (TDM) tests in Hospital Raja Permaisuri Bainun (HRPB) in August 2010 and to identify the mistakes that have been made by medical practitioner which contribute to TDM errors in antibiotics test. Methodology: This is a retrospective study conducted at TDM unit of Clinical Pharmacy, HRPB. Majority of the information related to TDM can be obtained either in journals or articles. To get more specifics details regarding our research topic, we went to the TDM unit of HRPB to get the patient's record from the computer. We then exclude data of patients from other months, other hospitals and 'Klinik Kesihatan'. Only patients that undergo the antibiotics tests were included in our study. Data were analysed by using Microsoft Excel and SPSS, and presented as percentages, tables and graphs. Results: The numbers of antibiotics tested in August 2010 were 487. The highest number of tests that have been run in and was sent from wards to TDM unit in HRPB was vancomycin which were 213 tests (43.7%), followed by gentamicin which was 206 (42.3%) and amikacin which was 68 (14%). Discussion: Vancomycin contributed to the highest number of test mainly because of Hospital Acquired Methycillin Resistant Staphylococcus Aureus (HA-MRSA) was high in HRPB . In aminoglycoside group, gentamicin is higher compared to amikacin because of gentamicin is used as the first line agent to treat the gram negative bacilli, whereby amikacin is used as the last resort for the treatment. After further investigation it proven that the antibiotics that have the highest number of toxicity cases is vancomycin with 51 cases, followed by 22 cases of gentamicin toxicity, and amikacin with only three toxic cases. This is because the number of overall tests affecting the number of toxicity cases. There are 42 sampling errors suspected by the pharmacist in August 2010. The highest is gentamicin with 20 tests (48%), followed by 13 vancomycin tests (31%) and amikacin

with 9 tests (21%). Factors that lead to TDM errors can be divided into personnel, equipment and also environment. Conclusion: In a nutshell, medical practitioner should become more aware and increase their knowledge of antibiotic therapeutic drugs monitoring assays as it is an important tool for better health care.

Key words: Therapeutic Drug Monitoring, Vancomycin, Gentamicin, Amikacin, Hospital Raja Permaisuri Bainun.

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