

UNIVERSITI TEKNOLOGI MARA



**Analysis of Methicillin-Resistant *Staphylococcus aureus*
(MRSA) and Methicillin- Susceptible *Staphylococcus
aureus* (MSSA) infection in Hospital Pakar Sultanah
Fatimah (HPSF)**

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DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations of Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Analysis of Methicillin-Resistant *Staphylococcus aureus* (MRSA) and Methicillin-Susceptible *Staphylococcus aureus* (MSSA) Infection in HPSF

Background and objectives : The aim of the present study was to observe and analyze distribution of patient infected with Methicillin-Resistant *Staphylococcus aureus*(MRSA) and Methicillin-Susceptible *Staphylococcus aureus* (MSSA) infection in Hospital Pakar Sultanah Fatimah, Muar based on age and gender of patient. Age and gender affect the number of patient infected with either MRSA or MSSA organism. MRSA organism is known as major nosocomial pathogen worldwide. It is more dangerous compared to MSSA since it shows resistance to beta-lactam antibiotics. For MRSA, infection can occurred either HA-MRSA (Healthcare- associated MRSA) or CA-MRSA (Community Acquired MRSA).

Method: Identification test such as biochemical test, gram stain and culture on media like Sheep Blood Agar, Mannitol Salt Agar and DNase agar were done. When all the characteristics show that the organism grow is *Staphylococcus aureus*, the procedure is proceed with antimicrobial susceptibility test (AST) to specify it into either MRSA or MSSA after have been tested with oxacillin disc especially and the other disc generally. For method of research, a letter for permission to collect data is made to give to the Chief of Pathology Department. After passed, retrospective study whereby previous data was collected based on age and gender of patients. Data is analyzed and fully dissertation is written.

Result : Based on the observation of the result on age, old people tend to be more infected with MRSA organism while adult people dominates the MSSA infection. According to statistical analysis performed by using Graphpad prism software, there is significant difference between age and number of patient infected with MRSA and MSSA infections. In terms of gender, statistical analysis shows that there is no significance difference in number of patients even though male show highest number for both MRSA and MSSA infection. For type of samples, majority sample received from site of infection is tissue.

Discussion : According to age, old people tend to be more infected with MRSA infection compared to adult because it may be due to weakened immune system. Statistical analysis for age also shows significant result. Consequently, null hypothesis made can be rejected. For gender, even though male shows higher number for both MRSA and MSSA infection compared to female, statistical analysis shows no significant difference between gender and number of patients infected. As a result, null hypothesis made cannot be rejected. Meanwhile for type of samples, tissue is the most sample received. This may be due to habitat of *S.aureus* itself in which is on skin.

Conclusion: In short, MRSA is dangerous since it show resistant to beta-lactam antibiotics. Precaution step should be taken in order to prevent our body from being infected by both organisms. We also can conclude that age affect the number of patient infected with either MRSA or MSSA since it shows significant result but not for gender.

Key words : MRSA, MSSA, Hospital Muar.

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