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## Evaluating the appropriate use of Piperacillin / Tazobactam in cardiac center of King Fahad Medical Center

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**Background:** The appropriate use of Piperacillin / Tazobactam (Pip/Taz ), including correct dosing, stopping for negative culture, or de-escalation according to the microbiological culture test, is essential to reduce the antibiotic resistance. In surgical cardiac unit Piperacillin/ Tazobactam was started empirically (started if the infection is suspect till culture workup with its sensitivity to Piperacillin/ Tazobactam, other antibiotics or even negative culture ) . In this study, we aimed to evaluate the use of Pip/Taz based on requests for cultures and de-escalation according to sensitivity results of culture tests at the surgical cardiac unit of King Fahad Medical City (KFMC).

**Method:** This was a prospective study aimed to involve all those patients who admitted to the cardiac surgery unit at KFMC and prescribed at least one day of Pip/Taz as an empirical therapy throughout one year from October 2017 to October 2018. Data collected on whether microbiological culture and sensitivity test requests were made within 24 h of starting Pip/Taz the appropriate dosing, stopping for negative culture and de-escalation after receiving culture and sensitivity results.

**Results:** Of the 150 patients who received Pip/Taz, three patients were excluded from the study because of early death or discharge. Cultures were done in 125 of 147 (85 %). The overall appropriate use of Pip/Taz was seen in 78 patients (53 %). The results of culture tests justified the continuation of Pip/Taz only in 32 patients (52%) out of 62 cases. 21 cases showed sensitivity to narrow spectrum antibiotics, De-escalation was delayed >24 h or not done in 7 out of 21 (33%) eligible patients. On the other hand, 22 cases; 15 % of patients continued receiving Piperacillin/ Tazobactam without any culture test or ID consultation during the whole treatment course.

**Conclusion:** The empiric uses of Piperacillin/ Tazobactam in the surgical cardiac unit at KFMC- a tertiary care hospital - in Saudi Arabia was largely inappropriate and not entirely driven by the culture-test result. Interventions are needed to optimize the use of Piperacillin/ Tazobactam. Important interventions include appropriate culture and sensitivity driven use and timely de-escalation or discontinuation when indicated. This is preventing emergence of resistance and reduce the patient and financial toxicity.

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