



RETROSPECTIVE EVALUATION OF PIPERACILLIN-TAZOBACTAM, IMPENEM AND MEROPENEM USED IN SURGICAL WARD AT HPSF

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Abstract

Background: This research is to retrospectively evaluate the usage of broad-spectrum antibiotics specifically piperacillin/tazobactam, meropenem and imipenem at the surgical wards in Hospital Pakar Sultanah Fatimah (HPSF). The appropriateness will be evaluated based on the prescription of antibiotic with or without culture and sensitivity test request, discontinuation of antibiotic with negative culture test, and proper de-escalation based on culture and sensitivity test.

Methodology: The study involved all 81 adult patients age 12 and above who were admitted to Ward 4, Ward 5 (both are surgical wards) and Intensive Care Unit under Surgical Review. These patients were treated by each one of these three broad-spectrum antibiotics namely Imipenem, Meropenem, and Piperacillin-Tazobactam during a period of one year from 1st January 2018 to 31st December 2018. Data were analyzed by using Microsoft Excel 2016 and SPSS 22.

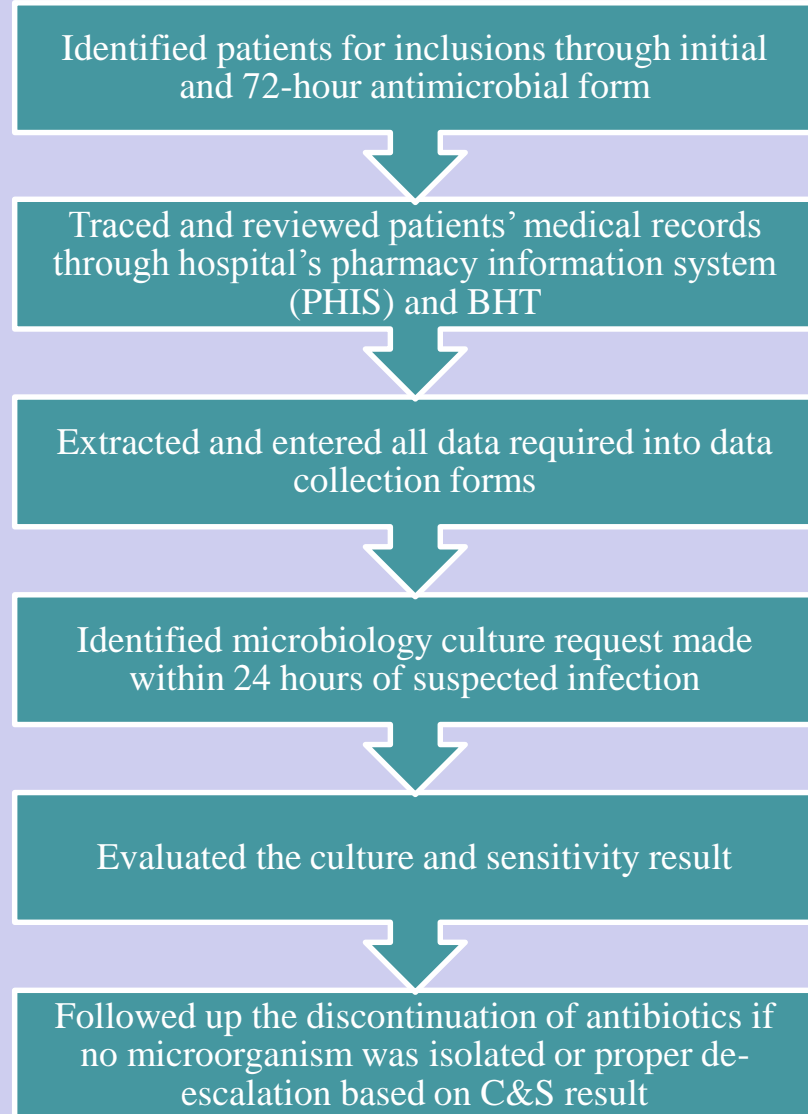
Result: There were 68 patients who were prescribed with antibiotic and had culture and sensitivity test request and result. Meanwhile the other 13 patients were started on the broad-spectrum antibiotics ($p=0.188$). 49 patients who were continued on receiving broad-spectrum antibiotics despite having negative test result ($p=0.243$). 65 patients did not have de-escalation and remaining 16 patients were de-escalated to either cefuroxime, amoxicillin-clavulanate, ampicillin-sulbactam, ceftriaxone or ciprofloxacin. ($p=1.51$).

Conclusion: A study in surgical ward has been done in order to identify the usage of 3 types of antibiotics which is Piperacillin-Tazobactam, Meropenem and imipenem. From this study, a total 81 patients who receive at least one antibiotic, 84% of it has conduct culture and sensitivity test and the rest is not. Then, 60% of continuation of antibiotics has been done despite negative growth of microorganism. This is largely due to the clinical practice by specialist. Lastly, only 13% were de-escalated to narrow spectrum of antibiotics after culture sensitivity result come out.

Introduction

Antibiotics are very important in modern medicine as it has been used as a routine practice for the treatment of infective illness. Despite the medical advances that produced a lot of drugs that safe and effective, the community was pouring with benefits of antibiotics without knowing the proper indication for it. The inappropriate prescribing of antibiotic may lead to the unwanted side effect such as the emergence of unwanted antimicrobial resistant and eventually leading to higher medical costs, prolonged hospital stays and increased mortality.

Methodology



Result

Figure 1: Number of Patients Receiving Antibiotic

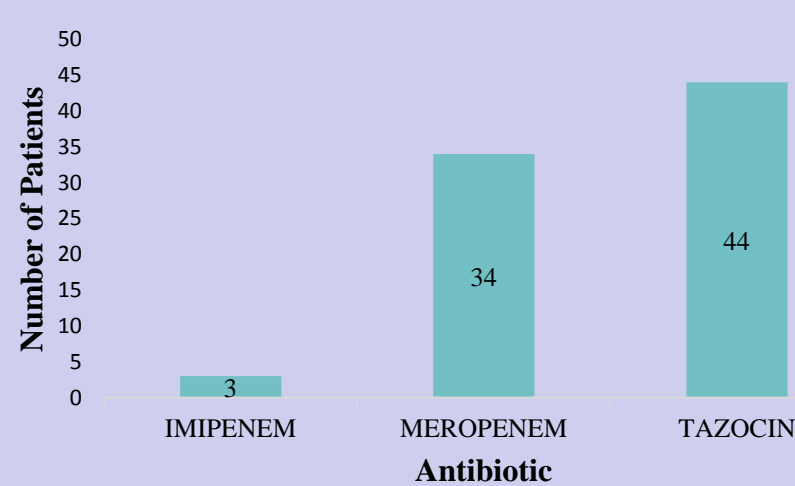


Table 1: Prescription of antibiotic with or without culture and sensitivity test

C&S Test Request	Types of Antibiotics			Total	P-value
	Imipenem	Meropenem	Tazocin		
With	3	31	34	68	0.188
Without	0	3	10	13	
Total	3	34	44	81	

Table 2: Continuation of antibiotic despite negative culture

Continuation	Types of Antibiotics			Total	P-value
	Imipenem	Meropenem	Tazocin		
No	2	16	14	32	0.243
Yes	1	18	30	49	
Total	3	34	44	81	

Table 3: De-escalation of antibiotic according to culture and sensitivity test result

De-escalation	Types of Antibiotics			Total	P-value
	Imipenem	Meropenem	Tazocin		
No	3	24	38	65	1.51
Yes	0	10	6	16	
Total	3	34	44	81	

Discussions

1. Inappropriate use of wide-spectrum antimicrobials at HPSF's surgical floors included use without a culture test (16%), continued use of antibiotics despite negative culture-test results (60%), and no de-escalation of antibiotics (80%).
2. The common practice among the specialist to initiate antibiotic as empirical treatment, or even in patients with fever and elevated white-blood-cell count. The treatment is then continued as long as patient symptoms were improving. At this point, clinicians decide not to request further culture and sensitivity test.
3. Rational antibiotic use required prompt de-escalation and continuation of the wide-spectrum antibiotic supported by the findings of culture-testing.

Limitations

1. The data were from a single institution and a surgical setting only, which resulted in small sample size where tests are not really powered to detect differences.
2. The data were collected through available antibiotic forms. Therefore, there were possibility that the antibiotic forms were missing.
3. Some of patients' BHT were unable to be traced due to (1) wrong and incomplete informations written on antibiotic forms for example wrong registration number (2) few BHTs were unavailable in unit record as they were used by other units.
4. There was no similar research has been done in HPSF, hence the reliability of this research cannot be confirmed.

Conclusions

1. 84% of it has conduct culture and sensitivity test and the rest is not.
2. 60% of continuation of antibiotics has been done despite negative growth of microorganism. This is largely due to the clinical practice by specialist.
3. Only 13% were de-escalated to narrow spectrum of antibiotics after culture sensitivity result come out.

References

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