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INTRODUCTION

Cephalosporins are amongst the most commonly used antibiotic in hospital settings worldwide. Hospital Queen Elizabeth II (HQEII) was the highest user nationwide for this and in 2018, the antibiotic report collated by the Pharmacy Department of HQEII reflected high usage of third-generation cephalosporins in medical wards.

OBJECTIVES

To identify:

- The indication(s) of third-generation cephalosporins in medical wards at Hospital Queen Elizabeth II.
- The dosing regimen appropriateness (dose, frequency and duration) as accordance to the National Antibiotic Guideline (NAG) 2019.

METHODS

- A prospective, observational study was conducted in general medical wards HQEII from June 2019 - January 2020.
- Inclusion criteria: Adults patients who were prescribed with third-generation cephalosporins (ceftazidime, ceftriaxone, cefotaxime, cefoperazone/sulbactam).
- Parameters of interests: *Demographic, indication, antibiotics regimen and duration and relevant laboratory parameters.*

RESULTS

- Total of 137 patients recruited. Patients' demographic was displayed in Table 1.

Table 1: Demographic characteristics

Demographic characteristics		n (%)
Gender	Male	83 (60.6%)
	Female	54 (39.4%)
Age (mean ± SD)	53 ± 16.8 years-old	
Comorbid(s)	No known medical illness	23 (16.8%)
	Diabetes Mellitus	66 (48.2%)
	Chronic kidney disease	52 (38%)
	Dyslipidemia	20 (14.6%)
	History of melioidosis	3 (2.2%)
	Others	15 (10.5%)
Usage of third-generation cephalosporins	Ceftazidime	85 (62%)
	Ceftriaxone	48 (35%)
	Cefotaxime	4 (2.9%)
	Cefoperazone/Sulbactam	0 (0%)

- All patients' cultures were taken prior to initiation of antibiotics. The antibiotics choice and dosage regimen of third-generation cephalosporins were initiated appropriately as per NAG 2019.

RESULTS (CONT)

- Respiratory tract infection (n=54, 39.4%) was the most common diagnosis by system. Median duration of antibiotics prescribed was three days (Interquartile range=3).

Table 2: Indication of antibiotics prescribed

Diagnosis		n (%)
Specificity of treatment	Empirical therapy	99 (72.3%)
	Definitive	38 (27.7%)
By system	Respiratory	54 (39.4%)
	Tropical	36 (26.3%)
	Gastrointestinal	25 (18.2%)
	Others	22 (16%)
Specific indication	Empirical melioidosis	64 (46.7%)
	Confirm melioidosis	13 (9.5%)
	Pneumonia	13 (9.5%)
	Infective acute gastroenteritis	11 (8%)
	Others	36 (26.3%)

Table 3: Common indications of third-generation cephalosporins

Top 3 antibiotic indication		n (%)
Ceftazidime (n=85)	Empirical melioidosis	64 (75.3%)
	Confirm melioidosis	13 (15.3%)
	Catheter related blood stream infection	7 (8.2%)
Ceftriaxone (n=48)	Community-acquired pneumonia	14 (29.2%)
	Infective acute gastroenteritis	10 (20.8%)
	Meningitis	9 (18.8%)
Cefotaxime (n=4)	Empirical spontaneous bacterial peritonitis	4 (100%)

- Due to the prevalent of melioidosis in Sabah, ceftazidime was often prescribed for empirical therapy of melioidosis (n=64, 75.3%), especially in patients presented with risk factors such as diabetes mellitus (n=40, 62.5%), chronic kidney disease (n=27, 42.2%) and occupational exposure (n=4, 6.25%). Only 13 patients (15.3%) turned out to be positive melioidosis.
- The mean duration for empirical therapy of melioidosis was 3 ± 1.6 days. It was observed that most review of ceftazidime was carried out within 72 hours of antibiotic initiation in which this is comply with the in-house Antimicrobial Stewardship Policy of HQEII.

CONCLUSION

Overall, third-generation cephalosporins were appropriately prescribed in medical wards as per NAG 2019. However, further exploration on the usage of ceftazidime in empirical melioidosis is warranted.

REFERENCES

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