The 22nd Asian Conference on Clinical Pharmacy

2023 Therapeutic Drug Monitoring of Amikacin in Haiphong International Hospital

Le Thi Thuy Linh¹, Vu Dinh Hoa², Nguyen Thi Thu Phuong^{1,3}, Hoang Thi Trang¹

(1) Faculty of Pharmacy, Haiphong University of Medicine and Pharmacy, Vietnam

(2) National Drug Information and Adverse Drug Reactions Monitoring Center, Hanoi University of Pharmacy, Vietnam

(3) Department of Pharmacy, Haiphong International Hospital, Vietnam

Presenter: Le Thi Thuy Linh, email: lttlinh@hpmu.edu.vn

INTRODUCTION

In Haiphong International Hospital, therapeutic drug monitoring (TDM) of amikacin has been implemented since 2019. Based on peak concentration (Cpeak, collected 30 minutes after the infusion) and trough concentration (Ctrough, collected 2 hours or 30 minutes before the next dose), amikacin dosage will be adjusted by APK software. This study aimed to describe the characteristics and outcomes of applying this protocol of the hospital from 2019 to 2022.

METHODS

P203

A retrospective data was collected from medical records of patients indicated with at least one TDM amikacin from 2019 to 2022 in Haiphong International Hospital.

The blood concentrations of amikacin from patients were compared to Cpeak/Ctrough target in the hospital's protocol.

The severity of acute kidney injury was classified according to the RIFLE criteria.

There were 204 patients indicated TDM amikacin from 2019 to 2022 in the hospital.

Figure 1: Infectious diseases diagnosed



Table 1. Characteristics of TDM amikacin

Charactoristics	Results	
	ODD (n =193)	MDD (n=11)
Initial dose (mg/kg)	19.09 ± 5.21	8.42 ± 2.39
(Mean ± SD)		
Cpeak (mg/L), Mean ± SD	57.73 ± 5,24	19.57 ± 4.14
Ctrough (mg/L), Mean ± SD	1.65 ± 1.67	0.77 ± 0.59
Number of TDM times per patient, Mean ± SD	2.94 ± 1.53	2.75 ± 1.64
Patients indicated TDM 1 time (n, %)	111 (54.41)	6 (2.94)
Patients indicated TDM 2 times (n, %)	55 (26.96)	1 (0.49)
Patients indicated TDM 3 times (n, %)	7 (3.43)	1 (0.49)
Patients adjusted amikacin dosing (n, %)	68 (33.3%)	

Table 2. Patients achieving the TDM target

gia - tài liệu chia sẻ tại CANHGIACDUOC.ORG.VN và facebook CANHGIACDUOC

- Sepsis shock
- Sepsis
- Respiratory infections
- Intra-abdominal infections
- Urinary tract infections
- Other

Sepsis shock and sepsis were the most common infectious diseases indicated TDM amikacin.

In 204 patients, there were 193 (94.6%) using one daily dosing (ODD) and 11 (5.4%) using multiple daily dosing (MDD).

	Cumulative quantity	Cumulative percentage, n = 204	ADR Quốc	
After first TDM	57	27.9%	DI&	
After second TDM	88	34.1%	âm	
After third TDM	93	45.6%	ng	
Amikacin dose was adjusted on 68 natients				

Amikacin dose was adjusted on 68 patients (33,3%) and the proportion of patients achieving the target was increased from 27.9% to 45.6%. Of those with dose adjustment, 50 patients required second or third time of TDM indication.

Acute nephrotoxicity was observed on 8 (3.9%) patients and all Risk according to RIFLE. This rate was lower than the overall rate of 7.8% on all patients using in 2022.

CONCLUSION: TDM amikacin is an effective and safe clinical tool. The hospital should consider to implementing TDM amikacin as a routine practice.

Presented at: The 22nd Asian Conference on Clinical Pharmacy