Poster

# [P25-4] P25-4: Anti-infective drugs (4): Vancomycin

Chair: Noboru Okamura, Japan

Mon. Sep 25, 2017 12:30 PM - 1:30 PM Annex Hall (1F)

(Mon. Sep 25, 2017 12:30 PM - 1:30 PM Annex Hall )

## [P25-4-2] Vancomycin trough concentrations alone might not be an accurate surrogate for AUC in clinical practice

Hana Suchankova[1], Jan Strojil[2] (1.Palacky University Olomouc, 2.Palacky University Olomouc)

Keywords: therapeutic drug monitoring, pharmacokinetic, pharmacodynamic, exposure, AUC

### Background

From the pharmacokinetic-pharmacodynamic (PK/PD) perspective, the ratio of the area under the concentration versus time curve (AUC) to the minimum inhibitory concentration (MIC) of the causative pathogen is the PK/PD parameter that best correlates with vancomycin efficacy. Recent US guidelines on vancomycin therapeutic monitoring (TDM) promote measuring of through concentrations ($C_{min}$) only for dosage adjustment as these were believed to be a good surrogate for AUC values. The aim of our study was to assess the concordance of recommendations based on these guidelines with AUC-based monitoring.

### Methods

A retrospective analysis of all vancomycin plasma levels determined during a one-year period in patients treated with IV vancomycin in University Hospital Olomouc was performed. Values with uncertain sample timing and patients undergoing haemodialysis were excluded. Each trough value was compared with the US guidelines with regard to the type of infection and the MIC of the pathogen involved. Consecutively, pharmacokinetic modelling using MWPharm++ (Mediware, Prague) software was performed to assess individual $AUC_{0-24}$ values.

### Results

A total of 354 vancomycin concentrations were included which represented 191 individual monitoring events performed in 89 patients. The median $AUC_{0-24}$ was 530 (IQR, 417.5 –700), median patients' serum creatinine was 86 mol/L (IQR, 66 –134). According to the AUC-based approach, dosage adjustment would be recommended in the 49.2 % of the events. Interestingly, clinical pharmacologist trained in TDM was consulted only in 13.1 % of all events of monitoring.

The recommendations based on the US guidelines would agree with the AUC-based dosing adjustments in 60.7 %. Approximately 25.7 % of trough concentrations were below the minimum target suggested by the US guidelines despite their corresponding $AUC_{0-24}$/MIC ratios were 400.

### Conclusions

AUC-based vancomycin monitoring is superior to trough-based approach as the later one can lead to unnecessarily aggressive dosing in over a quarter of patients.

### Acknowledgement:

The study was approved by local Ethics Committee FNOL No. 183/14. Supported by IGA UPOL 2017_LF_012