Introduction

-Vancomycin is frequently used to treat gram-positive infections especially methicillin resistant staphylococcus aureus (MRSA).

-Some of the adverse events that are well known to be associated with the use of vancomycin are infusion-related reactions specially “red man” or “red neck” syndrome associated with rapid infusion, nephrotoxicity and ototoxicity (2).

-It is recommended to maintain vancomycin serum level >10 mg/L to achieve successful therapy and avoid prolongation of treatment therefore prevent the development of resistant strains (4, 5).

Objectives

-The aim is to study the difference between clinical pharmacist-based vancomycin monitoring versus physician-based vancomycin monitoring in terms of safety outcome of vancomycin therapy.

Method

-This is an observational retrospective cohort study that was conducted at King Fahad Medical City (KFMC), Riyadh, KSA, starting in September 2014. The patients were distributed into physician group and clinical pharmacist group depending on who did the monitoring for vancomycin.

Inclusion criteria:
1. Male and female age more than 18 years.
2. Any patient started on vancomycin intravenously for >24 hours for suspected or proven infection during admission or hospital stay.

Statistical analysis:
-Categorical variables were presented as numbers and percentages. Continuous variables were expressed as Mean ± S.D. Independent sample t-test, Person’s Chi-square and Fisher exact test were used according to the data type.

Results

Table 1. Baseline Characteristics.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Physician Group (n=53)</th>
<th>Clinical Pharmacist Group (n=47)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (Year)</td>
<td>49.53 ± 21.50</td>
<td>54.85 ± 20.38</td>
<td>0.209</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Male</td>
<td>27 (50.9%)</td>
<td>26 (55.3%)</td>
<td>0.692</td>
</tr>
<tr>
<td>Female</td>
<td>26 (49.1%)</td>
<td>21 (44.7%)</td>
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</tr>
<tr>
<td>Mean Scr (umol/L)</td>
<td>49.10 ± 26.01</td>
<td>40.2 ± 23.13</td>
<td>0.082</td>
</tr>
<tr>
<td>Mean CrCl (ml/min)</td>
<td>36.33 ± 27.46</td>
<td>34.36 ± 23.91</td>
<td>0.320</td>
</tr>
<tr>
<td>Mean duration of therapy (Days)</td>
<td>7.91 ± 4.84</td>
<td>10.47 ± 10.72</td>
<td>0.120</td>
</tr>
</tbody>
</table>

n: Number of patients; Scr: Serum Creatinine; CrCl: Creatinine Clearance

Discussion

Many confounding factors that led to the increased rate of nephrotoxicity in clinical pharmacist group (Figure 1).

Figure 3. Confounding Factors for the Development of Nephrotoxicity in Clinical Pharmacist Group.

Conclusions

-This retrospective study concluded that there is non-statistically significant higher rate of nephrotoxicity in vancomycin patients monitored by clinical pharmacists compared with those monitored by physicians.

-Other secondary outcomes were significantly favoring the clinical pharmacist group. No other adverse reactions reported in both groups.

References