**Evaluation of Voriconazole Use in a 528-bed Community Teaching Hospital: a retrospective cohort study**

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**Background and Objective**
- Voriconazole is the treatment of choice for many invasive fungal infections including those that are fluconazole resistant.
- Voriconazole has unpredictable, nonlinear pharmacokinetics with extensive inter- and intrapatient variations.
- Inappropriate use of voriconazole is associated with dangerous adverse effects including hepatic and renal toxicity, visual disturbances, QT prolongation, and drug-drug interactions.
- This study aims to evaluate voriconazole utilization at a 528-bed community teaching hospital.

**Study Design**
- Retrospective, single-center, chart review.
- Patients ≥18 years who received voriconazole between July 1st, 2018 and June 30th, 2020 were included in the analysis.
- Patients who died within one day of therapy were excluded.

**Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
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<tbody>
<tr>
<td>Total no. of encounters</td>
<td>47</td>
</tr>
<tr>
<td>Female sex, n (%)</td>
<td>23/47 (48.9)</td>
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<tr>
<td>Age in years (IQR)</td>
<td>69 (60 - 74)</td>
</tr>
<tr>
<td>Weight in kg (IQR)</td>
<td>68 (55 - 95)</td>
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<tr>
<td>BMI in kg/m² (IQR)</td>
<td>25 (20.6 - 31)</td>
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<tr>
<td>Top services, n (%)</td>
<td>Internal Medicine (33/70), Pulmonology (4/8.5), TPN order, n (%) (5/11), Immuno compromised, n (%) (17/36), ID or Heme/Oncology approval, n(%) (47/100), Category X DDIs, n (%) (11/23), ADR requiring discontinuation, n (%) (1/2), QTc prolongation (1/2), LFT elevation (1/2), Length of stay in days (IQR) (15/7 - 32), Scr, mg/dL, day 1 (IQR) (0.8/0.6 - 0.95), Scr, mg/dL, max (IQR) (0.84/0.6 - 1), AST, units/L, day 1 (IQR) (25/19 - 40), AST, units/L, max (IQR) (26/20 - 49), ALT, units/L, day 1 (IQR) (22.5/14 - 37), ALT, units/L, max (IQR) (27/17 - 44)</td>
</tr>
</tbody>
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Inappropriate use of voriconazole is associated with dangerous adverse effects including hepatic and renal toxicity, visual disturbances, QT prolongation, and drug-drug interactions.

**Conclusion**
- Clinician education is necessary to promote IV to PO conversion and improve therapeutic monitoring.

**Table 1. Summary of Demographics and Clinical Characteristics**

- Table 2. Summary of Voriconazole Trough Levels
- Table 3. Summary of Cost Analysis

**Discussion**
- All voriconazole courses were approved by the ID or Heme/Oncology.
- Only two patients experienced side effects that required therapy discontinuation including: QTc prolongation and LFT elevation.
- Several category X DDIs were identified including tamsulosin, azithromycin, amiodarone, and carbamazepine.
- Suboptimal therapeutic drug monitoring occurred in 44% of patients requiring monitoring.
- Twelve patients received IV voriconazole during their admission despite qualifying for PO therapy, which resulted in unnecessary costs.
- Further education is required for nursing and pharmacy staff to ensure effective voriconazole administration.

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**References**