Evaluation of a Daptomycin Dosing Protocol Based on Adjusted Body Weight at a Community Hospital

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Daptomycin is a lipopeptide antibiotic indicated for the treatment of complicated skin and skin structure infections, bacteremia resulting from Staphylococcus aureus, and right-sided infective endocarditis. There are multiple studies that support the use of adjusted body weight dosing for daptomycin in obese patients. The data from one study reported an increase of creatinine phosphokinase (CPK) in obese patients that were dosed based on actual body weight. At South Miami Hospital (SMH), there is a daptomycin dosing protocol that was revised. Now, pharmacists are to adjust daptomycin doses using a body mass index (BMI) above 30 kg/m² and/or total body weight (TBW) above 20% of their ideal body weight (IBW). This study was developed to identify the benefits of following the new daptomycin protocol.

**OBJECTIVES**

- The data was evaluated in order to:
  - Analyze the difference in patients' length of stay at the hospital.
  - Calculate the cost savings subsequent to the new protocol.
  - Compare CPK levels for those patients included post-protocol.

**RESULTS**

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Average Parameters</th>
<th>Pre-protocol Revision</th>
<th>Post-protocol Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td></td>
<td>N=25</td>
<td>N=22</td>
</tr>
<tr>
<td>N (%)</td>
<td>BMI (kg/m²)</td>
<td>14 (56%)</td>
<td>8 (36%)</td>
</tr>
<tr>
<td>Males</td>
<td></td>
<td>11 (44%)</td>
<td>14 (64%)</td>
</tr>
<tr>
<td>TBW/IBW (%)</td>
<td>40.6</td>
<td>50.1</td>
<td></td>
</tr>
<tr>
<td>Length of stay (days)</td>
<td>10.4</td>
<td>13.6</td>
<td></td>
</tr>
</tbody>
</table>

- **Average Days on Daptomycin Therapy**
  - Pre-protocol revision (n=25)
  - Post-protocol revision (n=22)
  - Average duration of therapy for both study groups did not differ significantly.
  - Post-protocol revision (n=22) had a lower average cost of daptomycin therapy.

- **Estimated Cost of Daptomycin Therapy**
  - Pre-protocol revision (n=25)
  - Post-protocol revision (n=22)
  - Estimated cost savings in the study period was $5,115.56.

- **Average CPK Level**
  - Pre-protocol revision (n=25)
  - Post-protocol revision (n=22)
  - There was an outlier in the post-protocol group with a CPK level of 1,600 U/L. This elevated level may be attributed to factors other than daptomycin.

**DISCUSSION**

- A total of forty seven (47) patients were included in this study. Out of those 47 patients, 25 were treated with daptomycin prior to the revision of the protocol and the remaining 22 were subsequent to the protocol revision.
- The average length of stay for the patients treated with daptomycin prior to the revision of the protocol was 10.4 days, and 13.6 days post-protocol revision.
- Duration of therapy for daptomycin was similar among the two studied groups.
- The average CPK level for patients prior to the protocol revision was 117.95 U/L, versus 154.32 U/L for patients after the implementation of the revised protocol.
- There was an outlier in the post-protocol group with a CPK level of 1,600 U/L. This elevated level may be attributed to factors other than daptomycin.
- Overall, the estimated cost of therapy was lower in the post-protocol revision group $14,469.85 (n=22), compared to $19,584.41 (n=25) prior to the protocol revision.

**CONCLUSION**

- The average duration of therapy for both study groups did not differ significantly in this study. This supports the existing literature stating that using adjusted body weight to dose overweight patients does not decrease the effectiveness of daptomycin.
- The protocol that is utilized at SMH proposes benefit not only for the patient but also for the institution. These benefits include decreasing unnecessary exposure to higher doses of daptomycin for patients and cost savings for the institution.

**REFERENCES**


**DISCLOSURES**

- Authors of this study have the following to disclose concerning possible financial or personal relationships with commercials entities that may have an impact or influence in the subject matter of this presentation:
  - Lorenzo M. Porras, Jr.: Nothing to disclose
  - Andre Moses: Nothing to disclose
  - Hasib Sheikh: Nothing to disclose