Extended Interval Aminoglycoside Dosing in Cystic Fibrosis

1. Initial Dosing:
   - Tobramycin 10mg/kg Q 24h
   - Amikacin 20mg/kg Q 24h

(The initial dose is increased over the usual 7mg/kg and 15mg/kg as a larger volume of distribution is anticipated. These doses are targeted to achieve peak concentration of 20-25 for tobramycin and 40-45 for amikacin)

2. Aminoglycoside levels should be drawn 2 hours and 6 hours after the first dose

3. Use these 2 levels to estimate the aminoglycoside half-life
   - \( K_e = \ln \left( \frac{C_{2\text{hrs}}}{C_{6\text{hrs}}} \right) / \text{time between the levels} \)
   - \( T_{1/2} = \frac{0.693}{K_e} \)

4. The dosing interval should be adjusted based on half-life (dosing Q 6 half lives with a dosing interval no shorter than the q 24h as per example below):

<table>
<thead>
<tr>
<th>Half life (hours)</th>
<th>Dosing Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than or equal to 5 hours</td>
<td>Every 24h</td>
</tr>
<tr>
<td>Between 5.1-7 hours</td>
<td>Every 36 hours</td>
</tr>
<tr>
<td>Greater than 7 hours monitoring</td>
<td>Every 48 hours with frequent drug level monitoring</td>
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</tbody>
</table>

5. Aminoglycoside 2 hour and 6 hour post dose levels should be measured at least weekly in CF patients on aminoglycoside therapy. Change in clinical status may require more frequent aminoglycoside measurements.

Edited 7.15.14