Foscarnet

Dosing & Monitoring Guidelines for Management of Invasive CMV Disease

**Indications:**

- Foscarnet is used for the treatment of invasive CMV disease among patients with suspected or documented ganciclovir-resistant CMV.

**Dosing:**

- Careful attention to dosing is required given the dose-related toxicities of foscarnet. Foscarnet doses are based on renal function according to the adjusted Cockroft-Gault equation:

\[
\left(\frac{140 - \text{age}}{\text{SCr} \times 72}\right) \times (0.85 \text{ if female})
\]

- Note that **weight is not a factor in the adjusted Cockroft-Gault equation**. Examples of estimates of corresponding non-adjusted creatinine clearance for a typical 70kg male are in parentheses to provide a comparison.

- Foscarnet dosing is weight-based; whether total or ideal/adjusted body weight should be used in obese patients is not known.

**Foscarnet Dosing Guidelines**

<table>
<thead>
<tr>
<th>Indication</th>
<th>Adjusted CrCl (ml/min/kg)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>[Non-adjusted CrCl for 70kg male (ml/min)]</td>
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<tr>
<td></td>
<td>&gt;1.4 [&gt;98]</td>
</tr>
<tr>
<td></td>
<td>[70-98]</td>
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<tr>
<td>Induction</td>
<td>90mg/kg q12h</td>
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**Important considerations for foscarnet administration:**

- **Infusion rate**: Infusion of foscarnet over <2h has been associated with symptomatic hypocalcemia (e.g. circumoral paresthesias). Initial doses should be infused over 2 hours. Reduction of infusion duration to no less than 1 hour may be attempted with careful monitoring.

- **Infusion site**: Infusion through a central line is recommended when available. If infusing through a peripheral line, the solution must be diluted to ≤12 mg/ml.

- **Hydration**: Ensuring adequate hydration is essential to mitigating the nephrotoxicity of foscarnet. Before the initial dose, administer 750-1000ml of D5 or NS over 1 hour. With subsequent doses, administer 500-1000ml of D5 or NS concurrently with the foscarnet. In patients with fluid overload, less (but not none) hydration may be given, recognizing the associated increased risk of nephrotoxicity.

**Monitoring parameters:**

- **Renal function**: Dose-related nephrotoxicity occurs in a substantial proportion of foscarnet recipients. Renal dysfunction usually (though not always) resolves 1-5 weeks after discontinuing foscarnet. During initial therapy and during hospitalization, serum creatinine should be monitored daily. Sustained (e.g. on 2 separate occasions) changes in serum creatinine of 0.4 mg/dl or more should warrant consideration for dose adjustment. For patients receiving foscarnet in an outpatient setting, serum creatinine should be monitored at least twice weekly. If creatinine increases substantially (e.g. >0.4mg/dl), consideration should be given to re-checking serum creatinine before infusion of next dose to determine if dose adjustment is necessary.

- **Electrolytes**: Depletion of Ca, K, Mg, Phos is common during foscarnet infusions. These electrolytes should be monitored 2-3 times weekly during the induction phase of foscarnet therapy (1-2 times weekly during maintenance therapy) and repleted as necessary. If electrolyte depletion is problematic, pretreatment with oral Ca, K, Mg or addition of electrolytes to hydration fluid (administered through a separate line from the foscarnet infusion), should be considered. Special caution should be used in patients with cardiac or seizure disorders.

- **Hematologic**: Anemia has been frequently described in association with foscarnet therapy in AIDS patients. A complete blood count should be obtained at least once weekly during therapy.

- **Symptomatic**: Nausea and vomiting may occur with foscarnet therapy. Pre-medication with anti-emetics may reduce the risk. Genital ulcerations occurring from excretion of foscarnet have been described; increased personal hygienic measures may be necessary. Symptoms of electrolyte abnormalities (tingling, paresthesias, arrhythmias, etc) should be monitored on follow-up visits.

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<table>
<thead>
<tr>
<th>Maintenance/Secondary Prophylaxis</th>
<th>90-120 mg/kg q24h</th>
<th>70-90 mg/kg q24h</th>
<th>50-65 mg/kg q24h</th>
<th>80-105 mg/kg q48h</th>
<th>60-80 mg/kg q48h</th>
<th>50-65 mg/kg q48h</th>
<th>NR*</th>
<th>40-60 mg/kg pHD*</th>
</tr>
</thead>
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*Not FDA-approved dosing; NR=not recommended by manufacturer – consult ID pharmacy for recommendations.
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