Appendix B: Carboplatin Dosing

Calvert Equation

Carboplatin Dose (mg) = Target area under the curve (AUC mg·min/mL) x (GFR* + 25)

*GFR estimated by calculated creatinine clearance using Cockcroft-Gault Equation (see below).

Cockcroft-Gault Equation

\[
\begin{align*}
\text{CrCl (male; mL/min)} &= \frac{(140 - \text{age}) \times \text{(weight in kg)}}{72 \times \text{serum creatinine (mg/dL)}} \\
\text{CrCl (female; mL/min)} &= 0.85 \times \text{CrCl (male)}
\end{align*}
\]

Maximum Carboplatin Dose Calculation

The FDA has recommended that physicians consider capping the dose of carboplatin for desired exposure (AUC) to avoid potential toxicity due to overdosing. The maximum dose is based on a GFR estimate that is capped at 125 mL/min for patients with normal renal function.

Based on the Calvert formula described in the carboplatin label, the maximum doses can be calculated as:

Maximum Carboplatin Dose (mg) = Target AUC (mg·min/mL) x (125 mL/min + 25)

For a target AUC = 6, the maximum dose is 6 x 150 = 900 mg
For a target AUC = 5, the maximum dose is 5 x 150 = 750 mg
For a target AUC = 4, the maximum dose is 4 x 150 = 600 mg

Additional Considerations

- Overweight or obese patients (BMI ≥ 25 kg/m²): Consider using an adjusted body weight.
  
  Adjusted body weight (kg) = ideal body weight (IBW) + 0.4 x (total body weight [TBW] – IBW)

- Patients with abnormally low serum creatinine (Cr), including elderly or cachectic patients: Consider using a minimum Cr of 0.7 mg/dL to avoid overestimation of CrCl.

- Measured CrCl: Consider using ethylene diamine tetraacetic acid (EDTA) or a 24-hour urine to measure CrCl (not a serum creatinine-based mathematical equation) when dosing at an AUC greater than 6 or when using an uncapped CrCl.
REFERENCES