Digoxin Lab.

Pharmacokinetic dosing method: 4 steps

1. *Estimate creatinine clearance.*

2. *Estimate clearance.* $Cl = 1.303 \, (CrCl) + Cl_{NR}$

3. *Use average steady-state concentration equation to compute digoxin maintenance dose.*

$D/\tau = (Css \cdot Cl) / F$

4. *Use loading dose equation to compute digoxin loading dose (if needed).*

$LD = (Css \cdot V)/F$

$$V = 7 \text{ L/kg} \quad \text{or} \quad V = \left(226 + \frac{298 \cdot CrCl}{29.1 + CrCl}\right)(Wt/70)$$

1. *Estimate creatinine clearance.* ***Jelliffe* method: 3 steps**

2. *Estimate total body store (TBS) and maintenance dose(D).*

$TBS =$

CrCl >30 mL/min   13–15 µg/kg for chronotropic effects
                                   8–12 µg/kg for inotropic effects

CrCl <30 mL/min   6–10 µg/kg

$D = \{TBS \cdot [14\% + 0.20(CrCl)]\} / (F \cdot 100)$

3. *Use loading dose equation to compute digoxin loading dose*

$LD = TBS / F$

Pharmacokinetics Parameter Method:

3 steps:

1- Make sure that are within Steady state

2- Calculate the CL:

$$Cl = [F(D/\tau)]/Css$$

3- Calculate the dose $\quad D/\tau = (Css \cdot Cl)/F$

Salazar and Corcoran:

Cockcroft and Gault

CrCl male= $\dfrac{(137-age)[(0.285*Wt)+(12.1*Ht^2)]}{(51*Sc)}$

CrCl male = $\dfrac{(140-Age)*wt}{72*Sc}$

CrCl female= $\dfrac{(146-age)\{(0.287*Wt)+(9.74*Ht^2)\}}{(60*Sc)}$

CrCl female = 0.85 $\dfrac{(140-Age)*wt}{72*Sc}$

Digoxin Immune Fab in Digoxin Overdoses

-If a digoxin serum concentration available:

Digibind dose (in vials) $=$

(digoxin concentration in ng/mL)(body weight in kg)/100

-If the no. of tablet is known or can be estimated:

$$\text{Digibind dose} = \text{TBS} / (0.5 \text{ mg/vial})$$

$$\text{TBS} = F(\text{\# dosage units})(\text{dosage form strength})$$

Booster Dose (BD)

$$\text{BD} = [(C_{\text{desired}} - C_{\text{actual}})V]/F$$

Conversions between different dosage form

$$D_{\text{IV}} = D_{\text{PO}} \cdot F$$

$$\text{Css}_{\text{new}} = \text{Css}_{\text{old}} (D_{\text{rounded}}/D_{\text{computed}})$$

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