FORMULARIO DE CONSULTA de BIOFARMACIA Y FARMACOCINÉTICA
CURSO 2007-2008

Modelo monocompartimental

i.v. $$C = C_0 \cdot e^{-k_{el} \cdot t}$$

e.v. $$C = C^0 \cdot e^{-k_{el} \cdot t} - A^0 \cdot e^{-k_a \cdot t}$$ $$C = f \cdot C_0 \frac{k_a}{k_a - k_{el}} \cdot (e^{-k_{el} \cdot t} - e^{-k_a \cdot t})$$

Modelo bicompartimental

i.v. $$C = A_0 \cdot e^{-\alpha \cdot t} + B_0 \cdot e^{-\beta \cdot t}$$

$$P = C_0 \cdot \frac{k_{12}}{\alpha - \beta} \cdot (e^{-\beta \cdot t} - e^{-\alpha \cdot t})$$

e.v. $$C = A_0 \cdot e^{-\alpha \cdot t} + B_0 \cdot e^{-\beta \cdot t} + P_0 \cdot e^{-k_a \cdot t}$$

$$C = C_0 \cdot k_a \left[\frac{k_{21} - \alpha}{(\alpha - k_a)(\alpha - \beta)} \cdot e^{-\alpha t} + \frac{k_{21} - \beta}{(\beta - k_a)(\beta - \alpha)} \cdot e^{-\beta t} + \frac{k_{21} - k_a}{(k_a - \alpha)(k_a - \beta)} \cdot e^{-k_a \cdot t} \right]$$

$$A_0 = C_0 \frac{\alpha - k_{21}}{\alpha - \beta}$$

$$\alpha + \beta = k_{12} + k_{21} + k_{13}$$

$$\alpha \cdot \beta = k_{21} \cdot k_{13}$$

$$B_0 = C_0 \frac{k_{21} - \beta}{\alpha - \beta}$$

$$V_{d(extr.)} = \frac{D}{B_0}$$ $$V_{d(área)} = \frac{D}{\beta \cdot AUC_0^\infty}$$ $$V_{d(ee)} = V_c \cdot (1 + \frac{k_{12}}{k_{21}})$$

$$t_{max} = \frac{1}{k_a - \alpha} Ln \frac{k_a - k_{21}}{\alpha - k_{21}}$$ $$t_0 = \frac{Ln\left(\frac{A_0}{A_\infty}\right)}{k_a}$$

Orden cero

M.C: $$C=\frac{k_0}{k_{el}}(1-e^{-k_{el}\cdot t})$$

B.C: $$C=\frac{k_0}{k_{13}}\left[1-\frac{k_{13}-\beta}{\alpha-\beta}\cdot e^{-\alpha\cdot t}+\frac{k_{13}-\alpha}{\alpha-\beta}\cdot e^{-\beta\cdot t}\right]$$

Aclaramiento

$$Cl_t=\frac{\Delta Q_{el}/\Delta t}{C} \qquad Cl_t=\frac{D}{AUC_0^{\infty}}$$

$$Cl_t=k_{el}\cdot V_d=k_{13}\cdot V_c=\beta\cdot V_{d(área)}$$

Dosis múltiples: Modelo Monocompartimental

i.v. $$C_{\min}^{n}=C_0\,\frac{1-e^{-n\cdot k_{el}\cdot\tau}}{1-e^{-k_{el}\cdot\tau}}\cdot e^{-k_{el}\cdot\tau} \qquad C_{\max}^{n}=C_0\,\frac{1-e^{-n\cdot k_{el}\cdot\tau}}{1-e^{-k_{el}\cdot\tau}}$$

$$D^*=\frac{D}{1-e^{-k_{el}\cdot\tau}}$$

e.v. $$C_{\min}^{n}=f\cdot C_0\cdot\frac{k_a}{k_a-k_{el}}\left[\left(\frac{1-e^{-n\cdot k_{el}\cdot\tau}}{1-e^{-k_{el}\cdot\tau}}\right)\cdot e^{-k_{el}\cdot\tau}-\left(\frac{1-e^{-n\cdot k_a\cdot\tau}}{1-e^{-k_a\cdot\tau}}\right)\cdot e^{-k_a\cdot\tau}\right]$$

$$C_{\max}^{n}=f\cdot C_0\cdot\frac{k_a}{k_a-k_{el}}\left[\left(\frac{1-e^{-n\cdot k_{el}\cdot\tau}}{1-e^{-k_{el}\cdot\tau}}\right)\cdot e^{-k_{el}\cdot t_{\max}^{n}}-\left(\frac{1-e^{-n\cdot k_a\cdot\tau}}{1-e^{-k_a\cdot\tau}}\right)\cdot e^{-k_a\cdot t_{\max}^{n}}\right]$$

$$D^*=\frac{D}{(1-e^{-k_{el}\cdot\tau})\cdot(1-e^{-k_a\cdot\tau})}$$

$$t_{\max}^{\infty}=\frac{1}{k_a-k_{el}}\cdot Ln\frac{k_a(1-e^{-k_{el}\cdot\tau})}{k_{el}(1-e^{-k_a\cdot\tau})}$$