Sex differences in clinical pharmacology

$$C_0 = \frac{\text{Dose}}{\text{Vd}}$$

Pharmacokinetics

$$C_{max} = \frac{\text{Dose}}{\text{Vd}(1 - e^{-(\text{Cl}/\text{Vd})\tau})}$$

$$C^{ss} = \frac{F \times (D/t)}{\text{Cl}}$$

XY-higher nanoparticle uptake in fibroblast

XX-higher nanoparticle uptake in hAMSC

Fat mass

lean mass

free water

higher for water soluble drugs

volume of distribution

Higher for lipid soluble drugs

higher CYP2D6
lower CYP3 A4

Metabolism

Lower CYP2D6
Higher CYP3A4

Transient time -44.8 hr
gastric pH -1.92

Absorption

Transient time - 91.7 hr
gastric pH - 2.59

Higher

Gastric motility

Lower

Lower resting heart rate
shorter QT interval
lower risk of cardiac arrhythmia

variation in heart rate

Higher resting heart rate
longer QT interval
Higher risk of cardiac arrhythmia

Faster clearance

Immune cell activation

slower clearance

Male specific

protein corona

Female specific

lower Ig G
and Ig M

Anti-PEG antibodies

Higher Ig M
and Ig G

Faster excretion of drugs

Kidney excretion

Slower excretion of drugs