CYP1A2 and PDE Suppression in FQT/FQAD: Potential Mechanisms to Consider

Person takes an FQ

FQ inhibits CYP1A2 + (Non?)-selective PDEs

Less CYP1A2 and PDEs, so cell sends out signal more is needed fast

More TOPO needed for the genes to make more CYP1A2 and PDEs

FQ binds to where TOPOs are more active, ie, CYP1A2 plus PDE gene transcription

FQ inhibition of CYP1A2 and PDEs directly + FQ-TOPO stops CYP1A2 and PDE gene transcription

- Rapidly dividing cells: may die if insult is great enough
- Drastically depleted CYP1A2 and PDE(s) while on the drug
- Possible de novo mutations in CYP1A2 and PDE(s) due to high TOPO activity while on the drug → functionality CYP1A2 and PDE(s) compromised once drug stopped
- Demethylases also inhibited by FQs resulting in long term or permanent epigenetic modifications → muting or suppression of CYP1A2 and PDE(s) post antibiotic.
- Autoimmunity to CYP1A2 and/or PDE(s)? → decrease/eliminate CYP1A2 and/or PDE function

- Possible CYP1A2 + PDE "rebound" effect when drug is stopped
- Long term or permanent suppression of CYP1A2
- Decreased ability to metabolize endogenous and exogenous substrates: food metabolites, steroids, hormones, supplements, fatty acids, products of exercise
- Decreased ability to metabolize methylated xanthines and derivatives, which are potent inhibitors of PDE
- Build up of above substrates → "Invisible Line" or threshold I can't cross for food, steroids, hormones, supplements, fatty acids, or exercise
- Leads to FQT/FQAD symptoms of CYP1A2 inhibition and PDE inhibition ("xanthine" toxicity? → additional PDE inhibitor)

- Long term or permanent non-selective suppression of PDE effect similar to methylated xanthines and derivatives (theophylline, aminophylline, caffeine, theobromine, paraxathine)
- Increase intracellular cAMP and adenosine antagonist
- FQT/FQAD symptoms: nausea, vomiting, diarrhea, increase in heart rate, abnormal heart rhythms (heart palps, tachycardia), CNS excitation (headaches, insomnia, irritability, dizziness and lightheadedness), seizures, anxiety, jitters, restlessness, nervousness, sweating, vasodilation, increased urination
- ACHE / BCHE inhibition as well?

See website: search "CYP1A2/PDE Flowchart" for more detailed description