Clinical Pearls

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Clinical Pearl 17/05/22

Each week we will aim to bring out a concise email that provides 4-5 key pieces of information addressing a specific issue in clinical therapeutics.

This week: The Long and Short of Drug-Induced QTc Prolongation

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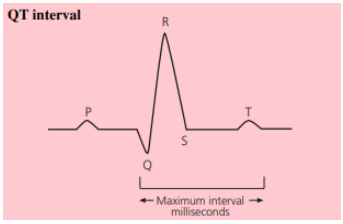

QTc interval is the duration between the Q wave and the end of the T wave on an electrocardiogram (ECG) measured in milliseconds (ms). The average QTc interval in healthy individuals is 440 ms in men and 460 ms in women. The risk of potentially fatal arrythmia torsades de pointes increases with the increase in QTc interval over baseline. While the risk is uncertain if the increase is 5–20 ms, an increase of >20 ms, particularly >60 ms, is considered proarrhythmic.

Drug-induced QTc prolongation is when QTc ≥ 500 ms or an increase of ≥ 60 ms compared to the premedication baseline. The degree of QTc prolongation appears related to the drug concentration therefore may be dose and administration route dependent, from reduced clearance, drug interactions or using concomitant drugs that prolong QTc.

Many drugs used in aged care are associated with QTc prolongation including risperidone, quetiapine, ondansetron but the high-risk drugs are:

Antiarrhythmics	Amiodarone Flecainide Sotalol
Antidepressants	Citalopram, escitalopram Amitriptyline, clomipramine, doxepin, imipramine Moclobemide

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Antimicrobials	Ciprofloxacin, moxifloxacin Clarithromycin, roxithromycin, erythromycin, azithromycin Fluconazole, voriconazole
Antipsychotics	Amisulpride Chlorpromazine Haloperidol Ziprasidone
Others	Domperidone Donepezil Hydroxychloroquine

Risk factors are congenital, electrolyte imbalances (e.g. hypokalaemia, hypomagnesaemia), cardiac (e.g. heart failure/ischemia/block, severe bradycardia) or cerebrovascular (e.g. stroke).

Susceptible patients need an ECG before and after starting the drug. If QTc prolongation is observed, it is advisable to stop the offending drug or switch to an alternative. It is important to avoid combining drugs known to cause QTc prolongation and be mindful of the risk factors.

References

- CredibleMeds
- NPS Medicine Wise
- Australian Medicines Handbook

Please consider these issues when preparing or interpreting RMMR reports or education sessions. Contributions of content or suggested topics are welcome and should be sent directly to natalie@wardmm.com.au