



Overlook of Acapulco Bay

PIC QUESTION OF THE WEEK: 4/18/11

Q: Can you provide a list of medications that prolong the QT interval and may result in torsade de pointes?

A: One of the original issues in this series (10/11/04) dealt with the topic of drug-induced prolonged QT interval and the arrhythmia known as torsade de pointes (TdP). Since that publication, many new medications have been identified that produce these effects. It is critical to recognize that prolongation of the QT interval is an EKG finding while TdP is considered a specific type of ventricular tachycardia that can quickly progress to ventricular fibrillation and cardiac arrest. The FDA recently distributed a MedWatch notice advising health professionals that the *injectable* form of dolasetron (Anzemet) is now contraindicated for preventing nausea and vomiting in *oncology* patients because of an increased risk of prolonging the QT interval and possibly causing TdP. Many and varied categories of drugs have been associated with these cardiac conduction effects. In some cases, the association is well documented. In others, there is much less evidence of clinical significance. The primary mechanism by which medications prolong the QT interval and result in TdP is based on their ability to alter intracellular potassium and/or sodium concentrations in conductive cardiac tissue. There are numerous lists of medications that potentially can prolong the QT interval. One of the most cited electronic links to this type of list is supported by the Arizona Center for Education and Research on Therapeutics (www.azcert.org). Additional lists have been published in some of the references cited below. The following table includes *many* of the drugs generally accepted as prolonging the QT interval and causing TdP.

Medications Generally Accepted to Prolong the QT Interval*

Medications with a <i>Risk</i> of Torsade de Pointes	Medications with a <i>Possible Risk</i> of Torsade de Pointes	
Arsenic trioxide	Alfuzosin	Ondansetron (Dolasetron, Granisetron)
Chloroquine	Amantadine	Oxytocin
Clarithromycin (Erythromycin)	Azithromycin (Telithromycin)	Ranolazine
Haloperidol (Chlorpromazine, Droperidol, Pimozide, Thioridazine)	Clozapine (Lithium, Paliperidone, Quetiapine, Risperidone, Ziprasidone)	Sunitinib
Methadone	Escitalopram	Tacrolimus
Pentamidine	Indapamide	Tamoxifen
Sotalol (Amiodarone, Disopyramide Dofetilide, Ibutilide, Procainamide, Quinidine)	Isradipine (Nicardipine)	Tizanidine
	Levofloxacin (Gemifloxacin, Moxifloxacin, Ofloxacin)	Vardenafil
	Moexipril/HCTZ	Venlafaxine

* Adapted from the AZCERT site described above.

References:

- Drug-induced QT prolongation. Pharmacists' Letter. May, 2010;26(4):269421.
- Miranda DG, McMain CL, Smith AJ. Medication-induced QT-interval prolongation and torsades de pointes. US Pharm 2011;36(2):HS2-8.
- Drew BJ, Ackerman MJ, Funk M, et al. Prevention of torsade de pointes in hospital settings: a scientific statement from the American Heart Association and the American College of Cardiology Foundation. Circulation 2010;121:1047-60.

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