

## Extent of use of QT interval prolonging medication in Psychiatry in- Patient in a tertiary care hospital

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### Abstract

QTc interval is affected by many factors and prolongation of same may have prognostic significance. A significant number of patients admitted in medical emergency are acutely ill, have multiple comorbidities and are on medications, all of these factors might affect QTc interval and prognosis.

Psychiatric patients constitute a population at notable risk of drug-induced QT-prolongation. Quite a number of antipsychotic and antidepressant drugs are known to cause significant QT-prolongation. The aims were to explore extent of use of QTc-interval prolonging agents in Psychiatry In- Patient in a tertiary care hospital in India. The study was carried out in the psychiatry In- Patient at NEIGRIHMS, Shillong, India. For each patient, the entire medication list was analyzed for the possibility of interactions, with particular attention on the high-risk QT prolonging ones. Arizona Center for Education and Research on Therapeutics (AZCERT) QT drug lists were used to classify TdP risks of psychotropic and other medications. 246 patients attending the psychiatry department during the 3 months study period were scrutinized. 149 patients (61%) were males whereas 97 (39%) were females in our study. Of the 246 patients, 207 patients (84%) were identified as receiving interacting medications with the ability to induce torsades de pointe (TdP). 349 (51.8%) interacting medications with torsadogenic risk were encountered out of total 674 medication prescribed to 246 patients. The most frequently interacting medications were from antidepressant (190), antipsychotic (132), antidementia (14), proton pump inhibitor (7) therapeutic categories.

As per AZCERT classification (CredibleMedsTdP risk-stratification lists), 110 (31.5%), 46 (13.2%) and 193 (55.3%) of the interacting medications were associated with known, possible, and conditional risk of TdP, respectively. Concurrent prescriptions of QT-prolonging drugs is frequent in psychiatry setting. Appropriate precautions should be instituted to provide caregivers with clear guidelines on how to use these drugs in a responsible and safe way.

Psychotropic medications extend the corrected QT (QTc) period in the ECG. Psychiatric patients exposed to  $\geq 1$  psychotropic medication (s) represent a group with a marked probability of drug-activated QTc-prolongation. Prolonged QTc interval in elderly patients (age > 60 years) is connected to a greater risk of all-cause and coronary heart disease deaths. We investigated the pattern of utilization of QTc-interval prolonging

medications, QT-extending interactions between drugs, and prevalence of QTc-interval prolonging risk factors in elderly patients. An interplay between one or more risk factors affecting individual propensity towards QT-prolongation have been identified in the medical literature; some of these are QT-prolongation at baseline, elderly patients, female sex, electrolyte imbalances (hypokalemia, hypocalcemia, hypomagnesemia), bradycardia, and hereditary cardiac diseases (long QT syndrome, ion channel polymorphisms). TdP usually is the result of multiple risk factors, such as advanced age, use of more than one TdP-classified hERG-blocking drug, cardiovascular disease, and possible electrolyte changes related to renal function compromise, use of diuretics, and/or acid-secretion inhibitors. Elderly patients commonly possess many of these risk factors. To cite an example, about 10% of patients aged  $\geq 75$  years are known to be affected by congestive heart failure. Moreover, elderly patients are more likely to be prescribed diuretics. Diuretic-induced hypokalemia and hypomagnesemia might accentuate drug-induced TdP risk. Additionally, elderly patients are more at risk of high levels of offending drugs owing to reduced renal clearance, reduced hepatic biotransformation capacity, as well as polypharmacy-related drug-drug interactions.