



Top 5 QT prolonging drug–drug interactions (QT-DDIs) in elderly psychiatry inpatients receiving psychotropic agents at a tertiary care hospital in India: a cross sectional study

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Introduction/Background & Aims

❖ Drug-induced QT-prolongation is a growing concern globally, provoking an increased risk of life-threatening fatal arrhythmias i.e., torsade de pointes(TdP) in psychiatric patients[1].

❖ The aim of this study was to explore the extent of use of QT prolonging medications, analyzing severity of possible DDIs in elderly psychiatric inpatients subjected to psychotropic medications.

Methods/Summary of Work

❖ This prospective, cross-sectional study was carried out in the psychiatry IPD at North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences(NEIGRIHMS), Shillong, India.

❖ For each patient, the entire medication list was analyzed for the possibility of DDIs, with particular emphasis on the high-risk QT prolonging DDIs.

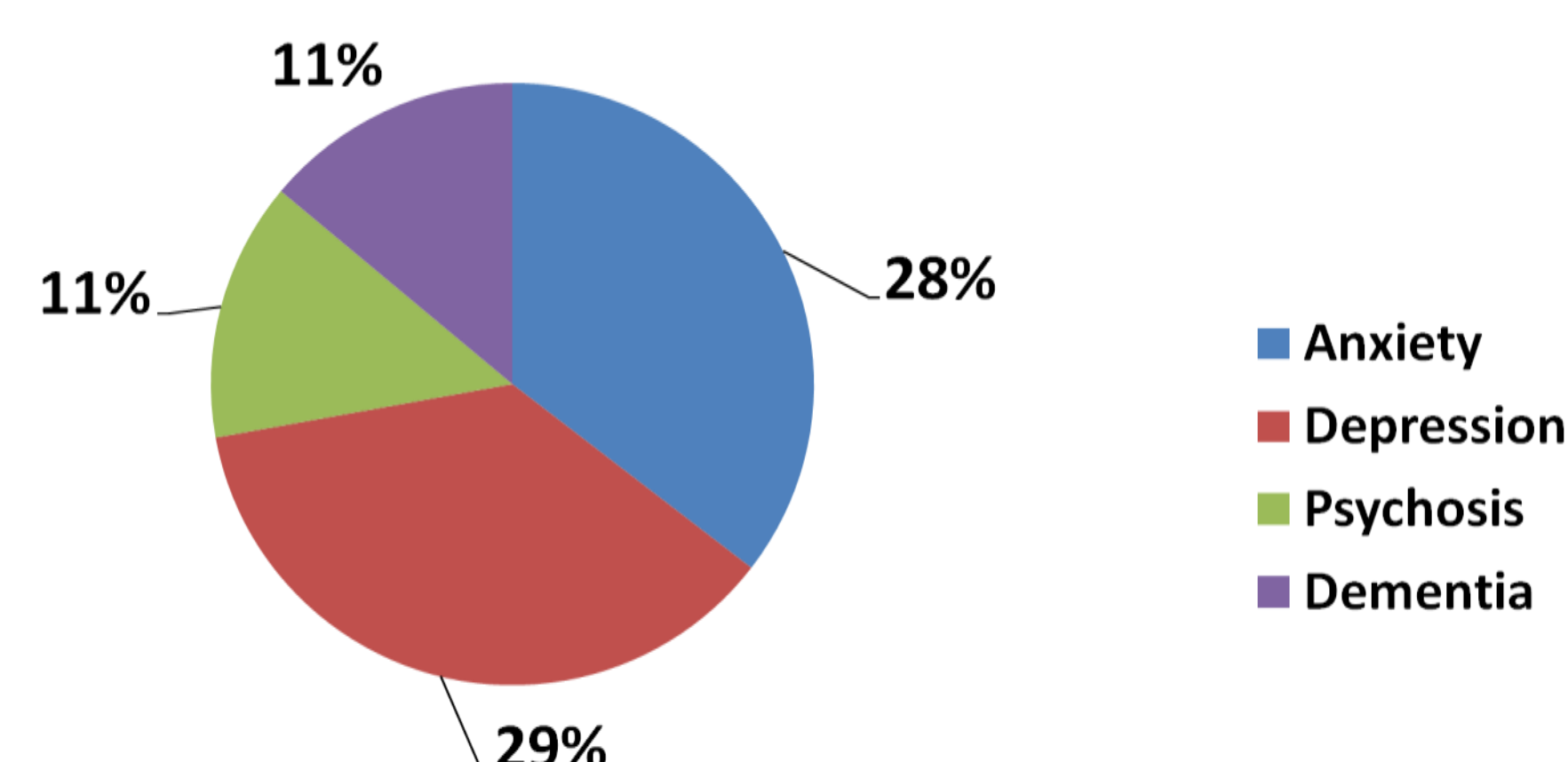
❖ Arizona Center for Education and Research on Therapeutics (AZCERT) QT drug lists were used to classify TdP risks of psychotropic medications.

❖ The “QTdrugs” lists 1-3 includes all drugs(257 as per the latest revised lists on 14 Nov 2022) that can affect the QT interval in humans and therefore have some risk of TdP.

❖ The DDIs were determined with the aid of two online DDIChecker softwares, “Drugs.com”, and “Medscape Drug Interactions Checker”[2,3].

- ✓ Total no. of psychiatric patients: 2055
- ✓ Total no. of elderly patients included in this study: 110 (5.3%)
- ✓ Male: 64 (58%)
- ✓ Female: 46 (42%)

Figure 1: Data showing the clinical details of elderly patients



- ✓ Total medicines received: 218
- ✓ QT prolonging medicines with the ability to induce possible TdP = 102(47%)
- ✓ Total interacting medication pairs with torsadogenic risk encountered= 24

□ The leading 5 torsadogenic DDIs are set out in **Table 1** along with their AZCERT classification (CredibleMeds risk stratification) and the therapeutic classification/categories of drugs.

The evidence-based identification and risk-stratification of QT interval prolonging DDIs in this study have been further scrutinized from “Medscape Drug Interactions Checker”, and “Drugs.com Drug Interactions Checker”.

Results & Discussion

Table 1. Top 5 QT prolonging drug–drug interactions (QT-DDIs) pairs with TdP risks and therapeutic classes of interacting drugs

QT-DDIs	TdPrisk		Therapeutic class		Frequency QT-prolonging DDIs : n
	Drug 1	Drug 2	Drug 1	Drug 2	
Escitalopram-Quetiapine	KR	CR	Antidepressant	Antipsychotic	3
Escitalopram-Olanzapine	KR	CR	Antidepressant	Antipsychotic	2
Escitalopram-Paroxetine	KR	CR	Antidepressant	Antidepressant	2
Escitalopram-Donepezil	KR	KR	Antidepressant	Anticholinesterase	2
Escitalopram-Mirtazapine	KR	PR	Antidepressant	Antidepressant	2

aTdP risk was based on the AZCERT QT Drugs Lists 1-3(as per the latest revised lists on 14 Nov 2022. KR = Known Risk of TdP; PR = Possible Risk of TdP; CR = Conditional Risk of TdP)

Table 2: Most common drug interacting pairs

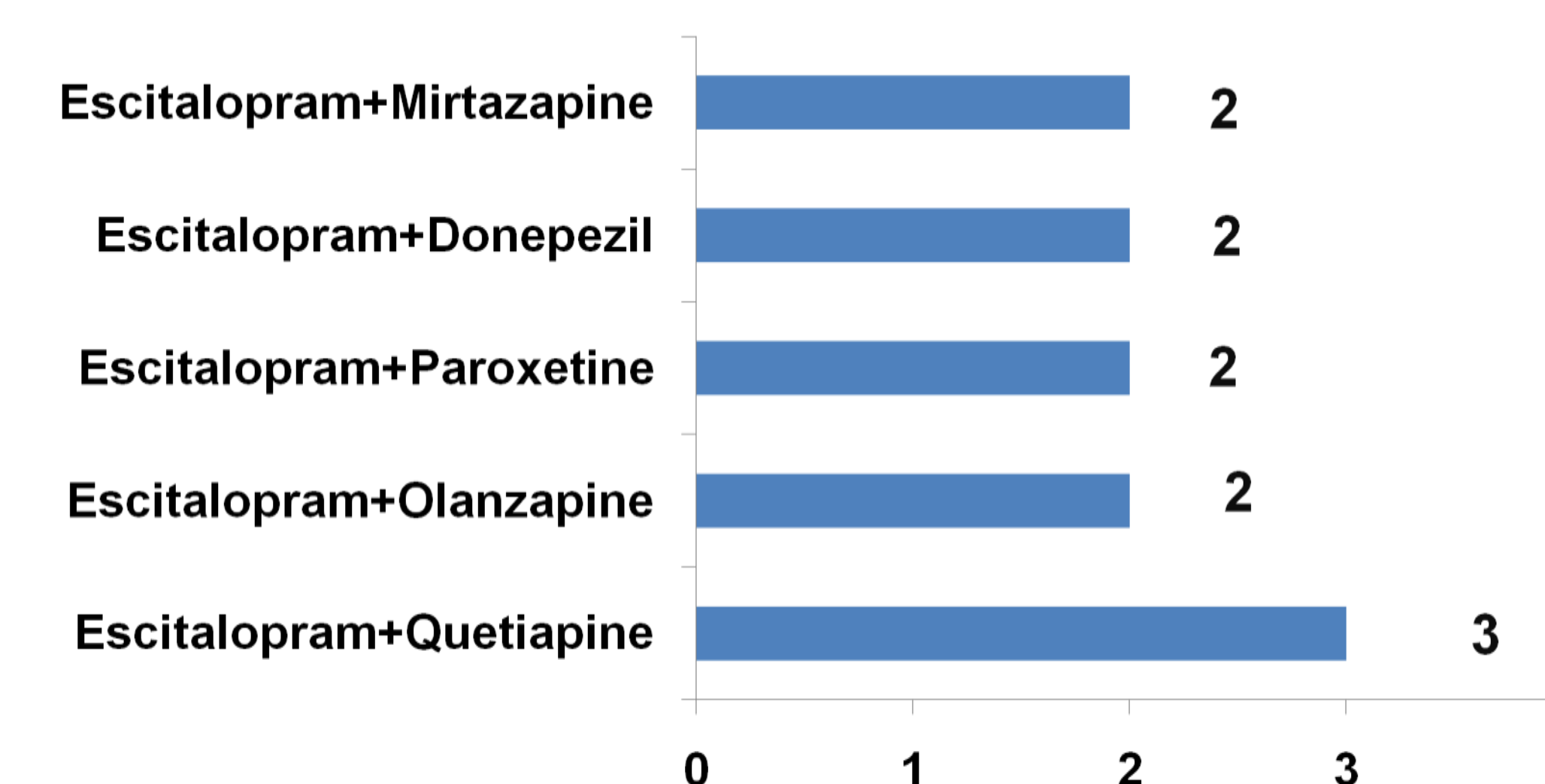
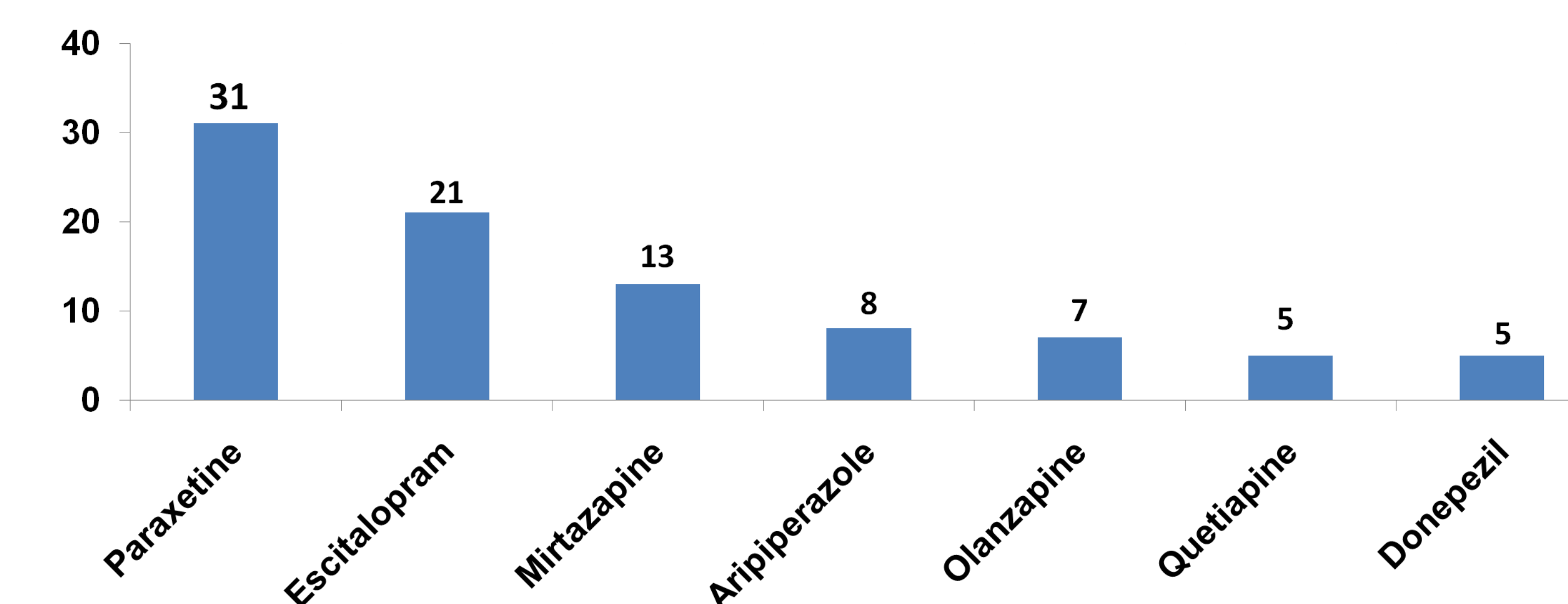


Table 3: Most common drugs involved in QT-DDIs



Conclusions

- QT-prolonging DDIs are common among elderly psychiatric inpatients and represent a preventable source of adverse cardiac events and costescalation.
- Incorporation of clinical decision support systems (CDSS) such as MedSafety Scan (MSS) hosted by AZCERT’s CredibleMeds utilizing AZCERT and DDI databases can optimize prescribing, reduce iatrogenic risk, and improve cost-effectiveness in psychotropic management for the elderly.

- Such reliable clinical support tools, can provide comprehensive analyses of TdP risk, drug interactions, and duplicate therapies, and produce a detailed patient-specific report that allows for documentation of management plans and pharmacotherapeutic adjustments.

References

- [1] Beach SR, Celano CM, Sugrue AM, Adams C, Ackerman MJ, Noseworthy PA, Huffman JC. QT prolongation, torsades de pointes, and psychotropic medications: a 5-year update. Psychosomatics. 2018 Mar 1;59(2):105-22. DOI: [10.1016/j.psych.2017.10.009](https://doi.org/10.1016/j.psych.2017.10.009)
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