

Citalopram Ingestions: a Two-Year Retrospective Study of the Toxicology Investigators Consortium

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Introduction: The selective-serotonin reuptake inhibitors (SSRIs) have an improved safety profile compared to older antidepressants (e.g. tricyclic antidepressants), though adverse effects including seizures, can occur in overdose. Among the SSRIs, seizure risk is reportedly higher with citalopram (up to 13.1%), even compared to escitalopram, the therapeutically active S-enantiomer. The Toxicology Investigators Consortium (ToxIC) database collects cases of toxicological exposures as reported by Medical Toxicologists who have evaluated patients at the bedside. Our study uses this database to further investigate the rate of seizures, and risk factors for seizures after citalopram ingestion.

Methods: The ToxIC database was queried from January 1, 2013 through December 31, 2015. Cases involving citalopram exposure were considered for inclusion. Exclusion criteria were any cases involving co-ingestion of escitalopram, bupropion or tramadol (the latter two agents are well known to also cause seizures). The primary outcome measured was incidence of seizures. Additional demographic and clinical features were analyzed for any increased association with the primary outcome: gender, tachycardia (HR > 140), bradycardia (HR<50), hypertension (SBP>200), hypotension (SBP<80), QTc prolongation (QTc>500 ms), CNS depression, delirium and neuromuscular excitability (e.g. tremor, myoclonus, hyperreflexia).

Results: 313 cases were identified, with 274 cases remaining after application of exclusion criteria. Seizures occurred in 36 cases (13.1%). There was a trend towards higher seizure risk in women, but it was not statistically significant (OR 1.54, 95% CI 0.69 - 3.41). Of the clinical features analyzed, the following had a significantly increased association with seizures: tachycardia (OR 2.65, 95% CI 1.21-5.82), and QTc prolongation (OR 3.83, 95% CI 1.66-8.85). The remaining clinical features did not carry an increased association with seizures: bradycardia (OR 2.24, 95% CI 0.45-11.24), hypotension (OR 2.60, 95% CI 0.89-27.59), hypertension (OR 1.07, 95% CI 0.05-21.2), CNS depression (OR 0.89, 95% CI 0.41-1.92), delirium (OR 0.54, 95% CI 0.12-2.36), and neuromuscular excitability (OR 1.30, 95% CI 0.58-2.92).

Discussion: In this study, the overall incidence of seizures with citalopram was similar to prior studies. Patients with tachycardia and QTc prolongation had a significantly higher rate of seizures. Further investigation is required to further clarify additional risk factors, such as other co-ingestants.