

A fatal case of serotonin syndrome after combined moclobemide–citalopram intoxication

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We present a case involving a fatality due to the combined ingestion of two different types of antidepressants. A 41-year-old Caucasian male, with a history of depression and suicide attempts, was found deceased at home. Multiple containers of medication with the MAO-inhibitor moclobemide (Aurorix[®]), the SSRI citalopram (Cipramil[®]), and the benzodiazepine lormetazepam (Noctamid[®]) as active substance, as well as a bottle of whisky were present at the scene. The autopsy findings were unremarkable, but systematic toxicological analysis (EMIT, RIA, HPLC-DAD, GC-NPD, and GC-MS) revealed the following: ethanol (blood: 0.23 g/L, urine: 0.67 g/L), lormetazepam (urine: 1.65 µg/mL), cotinine (blood: 0.63 µg/mL, urine: 5.08 µg/mL), caffeine (urine: 1.20 µg/mL), moclobemide (and metabolites), and citalopram (and metabolite). There upon, we developed a new liquid chromatographic separation with optimized diode-array detection, preceded by an automated solid-phase extraction, for the quantitation of the previously mentioned antidepressive drugs. The results obtained for blood and urine, respectively, were: Ro 12-5637 (moclobemide N'-oxide): not detected and 423.79 µg/mL, Ro 12-8095 (3-keto-moclobemide): 2.26 µg/mL and 49.72 µg/mL, moclobemide: 5.62 µg/mL and 203.72 µg/mL, desmethylcitalopram: 0.42 µg/mL and 1.22 µg/mL, and citalopram: 4.47 µg/mL and 19.67 µg/mL. The cause of death was attributed to the synergistic toxicity of moclobemide and citalopram, both antidepressants, which by intentional or accidental, combined ingestion, can produce a potentially lethal hyperserotonergic state. Based on the history of the case and pharmacology of the drugs involved, the forensic pathologists ruled that the cause of death was multiple drug intoxication, resulting in a fatal “serotonin syndrome”, and that the manner of death was suicide.