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Intravenous Administration of S-ketamine in a Severely Depressed Treatment-resistant Patient Receiving Tranylcypromine: a Case Report

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Tranylcypromine, an irreversible monoamine-oxidase (MAO) inhibitor, has been frequently used to treat the most challenging mood disorders since 1950s. Due to dietary restrictions as well as feared drug interactions, tranylcypromine has been increasingly replaced by modern antidepressants lacking such challenging pharmacology. Ketamine, a high-affinity non-competitive antagonist at the N-methyl-D-aspartate receptor, has been increasingly appreciated as rapid-acting antidepressant with good anti-suicidal properties. Previous in-vitro and ex-vivo studies suggested that ketamine acts as a monoamine-reuptake inhibitor. Since inhibition of monoamine-reuptake with concurrent blockade of MAO should have the potential to precipitate a sympathomimetic crisis, a combination of ketamine and tranylcypromine is considered hazardous.

Here we report on a 43-year-old, 120 kg female patient suffering from treatment-resistant depression with recurrent severe suicidal crises, who was treated with tranylcypromine. Because of elective surgery requiring general anaesthesia, tranylcypromine was discontinued for two weeks. After reinstating tranylcypromine 10 mg p.o.q.d., she became acutely suicidal again. Hence, intravenous S-ketamine 12.5 mg was slowly administered under cardiovascular monitoring. We observed good anti-suicidal effects, while no relevant changes in blood pressure or heart rate occurred during or after s-ketamine infusion. Under plasma level monitoring tranylcypromine was increased to 80 mg p.o.q.d., and intravenous S-ketamine up to 75 mg was repeatedly administered.

This report is believed to be the first to demonstrate repeated concomitant administration of S-ketamine and tranylcypromine as antidepressant treatment in humans lacking any relevant changes in cardiovascular parameters. Hence, we put serious doubt on whether monoamine-reuptake inhibition is a relevant pharmacological effect of ketamine in humans.

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