

Early response to ketamine infusions for depression: comparison between genders.

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Objectives:

- Study ketamine's effect on depressive symptoms between male and female patients with major depressive disorder.
- Study which gender responds faster to ketamine treatment by administering MADRS questionnaire.

Introduction: Major Depressive Disorder is characterized by depressed mood, decreased energy, changes in sleep and appetite, anhedonia and suicidal ideation. FDA-approved antidepressants, which modulate monoamine neurotransmitters take several weeks to provide therapeutic relief. Recently, ketamine, a non-competitive NMDA receptor antagonist, has been used for treatment-resistant depression. Unlike other antidepressants, it is characterized by a rapid onset of action. Previous studies show a single-dose infusion of ketamine rapidly decreases suicidal ideation and provides anti-depressant effects. In rodents, ketamine was found to be metabolized differently between females and males. Females had greater concentrations of ketamine over the first 30 minutes in both the brain and plasma due to slower clearance rates. Additionally, estrogen and progesterone, may make females more sensitive to the effects of ketamine. Very few studies have examined the role of gender in response to ketamine in the clinical setting. We hypothesize females will respond earlier than men to ketamine treatment.

Methods: The study was approved by the Institutional Review Board and Participants signed consent. Patients (n=13, 6 male, 7 female) received 0.5 mg/kg intravenous infusion of ketamine for treatment-resistant depression biweekly as standard of care. Response was measured using the Montgomery Asberg Depression Rating Scale (MADRS). Scores at the 2nd visit (2-5 days after the 1st injection) were compared to scores at baseline.

Results: The average MADRS scores decreased 10.3% for men (from 37.7±9.7 to 33.8±11.0) and 22.6% for women (from 33.6±8 to 26.0±6.7) between the 1st and 2nd

assessments. After one injection, 28% of women and 0% men had a decreased in MADRS score >50%, defined as response to treatment.

Conclusion: Analysis of data from this small sample suggests that females may have a higher rate of early response to low-dose ketamine infusion than men. This will need to be confirmed with a larger sample for statistical significance.