

Poster Number: EI 5

### **Ketamine in Late Life Treatment-Resistant Depression**

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**Introduction:** Ketamine is a dissociative anesthetic, which provides antagonism on the N-methyl-D-aspartate (NMDA) receptor. Several studies have demonstrated rapid anti-depressant and anti-suicidal effects from the administration of ketamine in adult patients but studies in late life patients are lacking. While ketamine may increase sympathetic stimulation and cause decreased respiratory rate in geriatric patients, it is still nonetheless considered a safe agent. Low-dose intravenous infusion of ketamine is gaining popularity in the treatment for treatment-resistant depression (TRD) in late life patients. We provide a case report on a patient in late life who suffered from TRD and was treated with ketamine.

**Methods:** A case report of the use of intravenous ketamine to treat a geriatric patient with TRD along with a literature review of the subject.

**Results:** A 76-year-old female with a history of hypertension and arthritis presented with worsening depressive symptoms for the past two years. She endorsed neuro-vegetative symptoms of depressed mood, poor appetite, unintentional 25-pound weight loss, and conflicted feelings about wanting to live. She also reported difficulties with concentration and memory, feelings of worthlessness, and psychomotor retardation. Her daughter stated she was more vegetative and had a strong desire not to live alone. QIDS (Quick Inventory of Depressive Symptomatology) baseline was 23. She had previous trials of multiple medications including paroxetine, fluoxetine, sertraline, escitalopram, bupropion, and venlafaxine. This patient showed poor tolerance to all the medications and at the time of assessment was taking mirtazapine 7.5 mg and duloxetine 60 mg. Electroconvulsive therapy (ECT) was recommended; however, the patient was found to be not a good candidate as per anesthesiology due to multiple comorbidities. As a result, mirtazapine was titrated to 15 mg nightly while duloxetine was continued at 60 mg daily. Patient was started on intravenous ketamine infusions of 20 mg (0.5 mg/kg) over 40 minutes. Patient tolerated the acute course of ketamine, which was administered twice per week. Patient and daughter reported clinical improvement after the first infusion with noticeable improvement in QIDS (23 to 12) after 6 acute sessions without adverse effects. Improved symptoms included brighter affect, increased energy, decreased anhedonia, increased daily activity, improved appetite (gained 40lbs), and being more engaged in the community. Additionally, she began to take care of herself again. She has received 17 ketamine treatments with latest QIDS score of 1. After 6 acute infusion sessions, she was tapered to once per week, then once per 10 days, once per 2 weeks and then to a once every three week schedule before discontinuing. The patient continued to report improvements. The literature on intravenous ketamine infusions has shown effectiveness in reducing depressive symptoms in cases of TRD. The patient presented in this study demonstrates promise of the use of ketamine in late life depression patients. This case also highlights that ketamine can be an alternative option for elderly patients with TRD who do not qualify for ECT. Within the geriatric population, comorbid medical conditions and polypharmacy may increase the chance of morbidity and mortality. Ketamine infusions at a low dose must be monitored closely over a course of time. Therefore, ketamine infusions should only be administered to TRD patients in facilities where appropriate medical monitoring can occur. Geriatric patients who are given ketamine infusions should be assessed for the development of dependency, and addiction given its abuse potential. Further research on this novel therapy will yield greater knowledge of how to best utilize ketamine infusions in geriatric patients.

**Conclusions:** The literature on intravenous ketamine infusions has shown effectiveness in reducing depressive symptoms in cases of TRD. Similarly, our patient had a decline in depressive symptoms and a positive outcome. The case highlights that ketamine can be used as an alternative for the TRD population that may not qualify for ECT. Within the geriatric population, comorbid pathology and poly-pharmacy increase the chance of morbidity and mortality. Ketamine infusions at a low dose can be a potential treatment if monitored closely over a course of time. Therefore, ketamine infusions offer a safe and effective alternative option for TRD patients in psychiatric facilities where close monitoring can occur. Patients on ketamine treatments should be continually monitored for addiction potential and adverse effects to ketamine infusions, none of which were seen with our current patient. Further research on this novel therapy will yield greater knowledge of how to best utilize ketamine infusions for the general population and more specifically for the geriatric subset that encompasses the majority of TRD patients.

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### **Home is Where the Heart is**

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