Results for the Study: A Prospective Randomized Double Blinded Control Trial using Ketamine or Propofol Anesthesia for Electroconvulsive Therapy: Improving Treatment-Resistant Depression

Introduction
Major depressive disorder (MDD) is a common disorder that can be challenging to treat. Currently, electroconvulsive therapy (ECT) is the treatment of choice for MDD, but has unpleasant side effects. At Royal University Hospital, a general anesthetic is provided for this treatment, and propofol is the most commonly used anesthetic agent. Ketamine is an alternative anesthetic agent with antidepressant properties. This study was the first randomized control trial aiming to compare the effects of ketamine to propofol as an anesthetic agents for ECT.

Methods
Patients with MDD were enrolled in a randomized clinical trial and assigned to receive either ketamine or propofol based anesthesia. We measured the number of ECT sessions required to achieve a 50 percent reduction in severity of MDD (measured by the Montgomery-Asberg Depression Rating scale - MADRS), time to disease remission, and any adverse effects.

Results
The study was stopped after 12 patients were recruited into each of the ketamine and propofol groups. All ketamine patients achieved at least a 50 percent reduction in severity of MDD after an average of 2 ECT sessions. In contrast, 10 propofol patients (83%) achieved the same outcome, after an average of 4 ECT sessions. All ketamine patients (100%) and 7 propofol patients (58%) achieved MDD remission. Ketamine patients achieved MDD remission more quickly than propofol patients. Adverse events were rare, and similar between groups.

Conclusions
Patients with MDD both improved and remitted after fewer ECT sessions with ketamine based anesthesia compared to propofol based anesthesia. These improvements were achieved without higher rates of adverse events.

If you have any questions, please feel free to contact us.
Sincerely,

Dr. Jonathan Gamble
Department of Anesthesiology, Perioperative Medicine and Pain Management
University of Saskatchewan,
Royal University Hospital
103 Hospital Drive,
Saskatoon, Saskatchewan
CANADA, S7N 0W8
Phone: (306) 655-1183
Fax: (306) 655-1279