Ketamine has been used in anesthesia for many years and in various environments with an acceptable safety margin. The side effects of hallucinations and paranoid thoughts need to be overcome for acceptance of ketamine infusion in mainstream psychiatry. In this case report, the anesthesia department was consulted because of familiarity with the medication and the ability to modulate unacceptable side effects with its use as is done in monitored anesthesia care. It is proposed that ketamine has potential for treatment of major depression associated with posttraumatic stress disorder (PTSD) in combat veterans. This patient, who had debilitating and treatment-resistant major depression and PTSD, was treated by intravenous infusion of ketamine and experienced substantial short-term resolution of symptoms.

Keywords: Combat veterans, depression, ketamine, N-methyl-D-aspartate, posttraumatic stress disorder (PTSD).
administered at a rate of 2 L/min. An IV line was started, and the patient received midazolam, 3 mg (0.04 mg/kg), IV as a preinduction medication. With an anxiolytic effect from the midazolam, evidenced by relaxed posturing and verbal admission of relaxation, the patient was administered propofol, 70 mg (1 mg/kg), combined with an IV bolus of 30 mg of lidocaine (arbitrary dose). When a hypnotic state was achieved, evidenced by loss of eyelid reflex, a 20-minute infusion by IV piggyback was administered of propofol, 30 mg (for an infusion rate of 20 µg/kg/min), and ketamine, 35 mg (0.5 mg/kg, according to the protocol for an ongoing study7). The patient maintained spontaneous respirations without need for oral or nasal adjuncts.

Fifteen minutes after the completion of the infusion, the patient was arousable and responding appropriately to verbal stimuli. Vital signs monitoring was continued every 15 minutes for 1 hour after he became responsive to verbal stimuli. At this time the patient was awake and conversant, although he stated that he was having trouble focusing his vision. The patient appeared to be improved in mental conditioning and was smiling and joking with the attendant staff. He was amorous with his wife and began touching his wife’s pregnant abdomen. These behaviors represented improvement from the pre-infusion state and were out of character for him from his recent mental standpoint.

At 1 hour after responsiveness, the IV line was removed and the patient was allowed to ambulate to the restroom. His gait was steady and he was able to void without difficulty. He returned to the stretcher where the infusion had taken place and continued to be conversant. After an additional 30 minutes of observation, the patient was discharged, with his spouse as an escort. He did complain of a slight headache at the completion of the infusion. No other untoward effects were noted by the patient; nor was there any increase in heart rate or lability of blood pressure.

The patient was followed up by his psychiatrist. The patient’s initial self-reports were of complete resolution of anxiety and depression lasting from day 1 to day 14 after infusion. Of particular note was his experience of normalized and restorative sleep, as well as disappearance of all debilitating nightmare events. He participated in his wife’s birthing class and so impressed the instructor that she invited him and his wife to assist in future classes. He experienced greater satisfaction and enjoyment in activities and uncharacteristic gregarious and social well-being not experienced previously with treatment. At 14 days after infusion he began to relapse into his preinfusion state of depression.

Discussion
Ketamine has a perhaps exaggerated negative perception among some clinical providers in its potential deleterious effects, including hallucinations, flashbacks, and fear of persecution or paranoia. These potential side effects were of concern to the treatment team, as any hallucinogenic experience could be harmful to a patient already living with PTSD. These possible side effects would have been unacceptable in this situation. The patient had conducted his own Internet searches on ketamine and was concerned about the unfavorable potential effects. Recent admissions of contemplating suicide and inability to stabilize after multiple attempted antidepressant medication trials made the need to minimize the side effects a priority.

Previous studies looking at ketamine in treatment-resistant depression used no other anxiolytics or anesthetics to avoid influencing the study. Minimal levels of ketamine are necessary for effective results, and furthermore ketamine is available as a pharmacy-compounded topical application medication (eg, used to treat postherpetic neuralgia). It is therefore hypothesized that for longer term positive effects a minimal number of IV infusions could be administered; then the patient could potentially switch to topical ketamine application while continuing psychiatric intervention. Results of the Ketamine as a Rapid Treatment for Post-Traumatic Stress Disorder trial7 may add useful information.

REFERENCES

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