

TREATMENT OF REFRACTORY STATUS

Propofol and Midazolam in the Treatment of Refractory Status Epilepticus

Prasad A, Worrall BB, Bertram EH, Bleck TP

Epilepsia 2001;42:380-386

PURPOSE: To explore outcome differences between propofol and midazolam (MDL) therapy for refractory status epilepticus (RSE).

METHODS: Retrospective chart review of consecutive patients treated for RSE between 1995 and 1999.

RESULTS: We found 14 patients treated primarily with propofol and six with MDL. Propofol and MDL therapy achieved 64 and 67% complete clinical seizure suppression, and 78 and 67% electrographic seizure suppression, respectively. Overall mortality, although not statistically significant, was higher with propofol (57%) than with MDL (17%) ($p = 0.16$). Subgroup mortality data in propofol and MDL patients based on APACHE II (Acute Physiology and Chronic Health Evaluation) score did not show statistically significant differences except for propofol-treated patients with APACHE II score >20 , who had a higher mortality ($p = 0.05$). Reclassifying the one patient treated with both agents to the MDL group eliminated this statistically significant difference ($p = 0.22$).

CONCLUSIONS: In our small sample of RSE patients, propofol and MDL did not differ in clinical and electrographic seizure control. Seizure control and overall survival rates, with the goal of electrographic seizure elimination or burst suppression rather than latter alone, were similar to previous reports. In RSE patients with APACHE II score >20 , survival with MDL may be better than with propofol. A large multicenter, prospective, randomized comparison is needed to clarify these data. If comparable efficacy of these agents in seizure control is borne out, tolerance with regard to hemodynamic compromise, complications, and mortality may dictate the choice of RSE agents.

control 45% of overt convulsive SE and 85% of subtle SE and that little was gained with the administration of additional standard drugs (1). SE that is refractory to initial therapy should be rapidly treated with a general anesthetic agent. The rapid onset and short duration of action of propofol and midazolam make them attractive options for treatment of refractory SE. In "Propofol and Midazolam in the Treatment of Refractory Status Epilepticus," Prasad et al. review their experience in using propofol and midazolam for refractory SE and compare efficacy and complications between the two treatments.

The study retrospectively identified 14 adult patients who received propofol and six who received midazolam for refractory SE. Although demographics were similar for the two groups, the propofol group included more patients with acute central nervous system injury and longer median duration of SE before therapy than the midazolam group. The study did not find any statistically significant difference in the degree of seizure control (78% and 67% electrographic seizure suppression for propofol and midazolam, respectively), suggesting that the two treatments have similar efficacy. If this finding is borne out by larger studies, safety issues and outcomes may prove especially relevant. Prasad et al. found no statistically significant differences between the propofol and midazolam groups in infectious complications, hemodynamic compromise, or number of days on a ventilator, however, the number of patients was very small. Mortality was 57% for the propofol group and 17% for the midazolam group, but this apparently large difference was not statistically significant.

This study offers an important first comparison between two general anesthetic agents that are now frequently used for refractory SE. How these agents compare with pentobarbital, the traditional therapy for refractory SE, remains unclear. Retrospective studies are limited by the inability to standardize dosing, timing of medication, initial therapy, and size of treatment groups. Despite these limitations, this study raises important issues regarding efficacy, safety, and mortality that need to be further addressed in a future prospective randomized study.

by Elizabeth J. Waterhouse, M.D., and Jane G. Boggs, M.D.

COMMENTARY

Initial treatment for status epilepticus (SE) frequently fails. Treiman et al. found that the first drug treatment did not

References

1. Treiman DM, Walton NY, Collins JF. Treatment of status epilepticus if first drug fails. *Epilepsia* 1999;40(Suppl. 7):243.