Role of propofol in refractory status epilepticus

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Authors' objectives
To review the clinical efficacy and adverse effects of propofol in the management of patients with refractory status epilepticus.

Searching
The authors searched the MEDLINE database, from January 1966 to April 1998, for English language studies pertaining to status epilepticus and propofol. Additional literature was obtained from the references of selected articles.

Study selection
Study designs of evaluations included in the review
Case reports and small, open, uncontrolled trials and non-randomised comparative studies.

Specific interventions included in the review
Propofol in varying dosages and treatment regimens (mostly administered as an intravenous bolus (1-3 mg/kg) followed by an intravenous infusion (1.5 to 11.33 mg/kg/hour) after failure of the following drugs: (phenytoin, clomethiazole, diazepam, phenobarbital, midazolam, paraldehyde, thiopental, valproate, carbamazepine, clonazepam, primidone, felbamate, lidocaine, lorazepam, oxcarbazepine, clobazam, vigabatrin and lamotrigine). Also in comparison with phenobarbital plus pentobarbital.

Participants included in the review
Patients with status epilepticus ranging in age from 9 months to 83 years of age treated in an emergency medical services setting or by "prehospital" emergency services.

Outcomes assessed in the review
The cessation of abnormal clinical and electrical seizure activity and adverse effects.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The authors do not report the method used to assess quality, or how the quality assessment was performed.

Data extraction
The authors do not state how data were extracted for the review, or how many of the reviewers performed the data extraction. Data were extracted for the categories of: study reference, age and gender, seizure etiology, seizure type, failed drugs used, propofol dose (bolus and infusion rate), effect, outcome, and comments.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative review and summarised by outcome measures.

How were differences between studies investigated?
The authors do not state how differences between the studies were investigated.
**Results of the review**

One, open, non-randomised trial (16 participants), 1 case series (8 participants) and 16 case report studies (28 participants) were included.

Initiation of propofol usually resulted in termination of seizure activity and/or electroencephalographic burst suppression within seconds that was sustained during the drug's use. Propofol infusion therapy was successfully withdrawn without return of seizure activity as early as 2 hours after propofol initiation and as long as 12 days after drug initiation. Most patients recovered within minutes after propofol was discontinued. Additionally, propofol was well-tolerated.

Propofol has been associated with a variety of neuroexcitatory adverse events such as opisthotonos, muscle rigidity, choreoathetoid movements and myoclonus. One case reported hemodynamic instability associated with the use of propofol. Additionally, although the data are inconclusive, propofol has also been reported to cause seizures. The Committee on the Safety of Medicines in the United Kingdom has estimated the incidence of seizures associated with propofol to be 1 in 47,000 patients (see Other Publications of Related Interest no.1).

**Authors' conclusions**

Propofol has shown promising results in the management of refractory status epilepticus when traditional therapies have failed or were not tolerated.

**CRD commentary**

Overall, the quality of this review is poor. The authors have stated their research question but have not listed inclusion and exclusion criteria for the review. The literature search used only one database which may have missed studies published outside the United States and non-English publications. Unpublished data were also excluded so there may be publication bias in this review.

The authors have not reported on how the articles were selected, or how the quality of the chosen studies was assessed. There is also no report as to who, or how many individuals, selected the articles and extracted the data. The data from each study is presented in a table and discussed in a narrative summary in the text. There is no discussion about the heterogeneity between the studies which include a wide range of participants and 'failed drug' treatments. Due to the limitations in the review and the inclusion of only one comparative (non-randomised) study, the authors conclusions should be viewed with caution.

**Implications of the review for practice and research**

Practice: The authors state that in addition to cardiovascular monitoring, patients receiving propofol should be monitored for respiratory depression if mechanical ventilation is not used, as well as hypertriglyceridemia and excessive caloric intake.

Research: The authors state that controlled clinical trials are needed to better assess the comparative efficacy, neurologic adverse effects and clinical outcome to better define its role in refractory status epilepticus.

**Bibliographic details**


**PubMedID**

9793598

**Other publications of related interest**

Indexing Status
Subject indexing assigned by NLM

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.