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ARTICLE

Compliance for single and multiple dose regimens of superactivated charcoal: A prospective study of patients in a clinical trial

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Background. Although activated charcoal is widely used for the treatment of self-poisoning, its effectiveness is unknown. An important consideration is patient compliance since poor compliance will limit effectiveness. We aimed to describe compliance in a randomized controlled trial (RCT) performed in Sri Lanka, presuming that this would set the upper limits for compliance in routine clinical use. *Method*. 1,103 patients randomized to single or multiple (six doses q4h) 50 g doses of superactivated charcoal were prospectively observed. Charcoal was given by study doctors who recorded the amount ingested and the amount of persuasion required for the patients to drink the charcoal. *Results*. 559 patients were randomized to receive one dose and 544 to receive six doses. Data was available for 1,071 (97%) patients. Eighty-eight were unable to complete their course; 98 required a NG tube, leaving 885 patients that received the first dose by mouth. The mean estimated amount of the prescribed dose of charcoal taken orally as a single or first dose was 83% (95% C.I. 82–84%). For patients receiving multiple doses, this amount fell over the next five doses to 66% (63–69%). While only 3.2% of patients refused the first dose, 12.3% refused the sixth. Relatively less persuasion was required for patients ingesting the first or single dose; 38% of patients required intense persuasion by the sixth dose. *Conclusion*. Compliance for a single dose of superactivated charcoal among trial patients was good. However, even in the ideal circumstances of a RCT, compliance decreased thereafter for patients taking more than one dose.

Keywords Self-poisoning; Superactivated charcoal; Multiple dose activated charcoal; Compliance

Introduction

Acute self-poisoning with pesticide, plant toxins, and medicines is common in Asia (1,2). Management is particularly difficult for pesticide and plant poisoning, and case fatality is often high (1). Standard therapy includes resuscitation, antidote administration, gastric decontamination, and supportive care including mechanical ventilation. However, the effectiveness of most interventions is unknown, including that of activated charcoal (3), which is administered as a suspension to poisoned patients in some Sri Lankan hospitals.

A recent RCT comparing single dose activated charcoal (SDAC) and multiple dose activated charcoal (twelve doses, MDAC) regimens in a Sri Lankan hospital reported that MDAC was highly effective in preventing deaths from yellow oleander (*Thevetia peruviana*) seed poisoning (4). Compliance with 12 doses of charcoal was not reported to be a problem in this trial. Before this RCT was completed, we initiated a RCT of no charcoal versus SDAC versus MDAC, using superactivated charcoal in unselected cases of acute self-poisoning in three Sri Lankan hospitals. Since some patients have ingested oleander seeds, its findings should complement the study of de Silva and colleagues (4).

Delivery of activated charcoal to the stomach, and therefore effectiveness, is dependent on patient compliance since in most cases it is administered by mouth rather than nasogastric (NG) tube (3). There have been no studies of compliance in poisoned patients receiving either SDAC or MDAC (3,5). Its subjectively unpleasant nature appears to affect patient compliance. With this study, we aimed to describe compliance in the idealized situation of a RCT, presuming that this would set the upper limits for compliance in routine clinical use.

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