Poster Abstracts

PO-64

EFFECTIVENESS OF PHYSOSTIGMINE COMPARED TO BENZODIAZEPINES IN THE TREATMENT OF ANTICHOLINERGIC DELIRIUM

James Barton [1], Andis Graudins [1,2]

[1]Monash Health, Clinical Toxicology Service and Monash Emergency Medicine Program, [1,2] School of Clinical Sciences at Monash Health, Monash University, Clayton, Victoria

Objectives: To compare the effect of physostigmine and benzodiazepines in the treatment of anticholinergic delirium on: 1) Reduction in agitation and delirium in patients with anticholinergic delirium as measured using the Richmond Agitation-Sedation Scale (RASS) and Delirium Score. 2) Time required to repeat dosing of either drug 3) Incidence of adverse events between the two classes of drug.

Methods: Retrospective chart review of referrals to our Toxicology Service with signs of anticholinergic delirium from August 2013 to Feb 2016. Fifty-one patients were identified. Nineteen were treated with benzodiazepines only, four were treated with physostigmine, nine were treated with both and 19 did not receive pharmacological treatment. RASS and delirium scores were calculated from nursing and medical observations pre- and post-drug administration. Time to repeat dosing was calculated as the mean time between repeat doses of either drug for each patient with a minimum time of 30 minutes between doses to allow for titration.

Results:
Antihistamine intoxication was the most common reason for anticholinergic delirium (n=20, 39%), followed by antipsychotic agents (n=17, 33%), tricyclic antidepressants (n=6, 12%), anticholinergics (n=5, 10%) and others (n=3, 6%). Tachycardia (n=47, 92%) was the most common clinical feature followed by dry skin (n=42, 82%), urinary retention (n=30, 59%) and mydriasis (n=16, 31%).
Initial median RASS was 2 (range 1-4) and median Delirium score was 2 (range 1-3) for both physostigmine and benzodiazepine groups. Median RASS was 1 for the group who did not receive medications. This group included patients who had ingested medications with significant sedative effects.
Physostigmine showed a statistically significant reduction in both RASS (mean reduction of 2.46 vs 1.62; $p<0.05$), and Delirium scores (mean reduction of 2.15 vs 0.76; $p<0.05$) compared to benzodiazepines. There was no difference in median time to repeat dosing (benzodiazepines 122.75 minutes vs physostigmine 192.5; $p=0.11$).
Adverse events were noted in 14% (4/29) who received benzodiazepines. Excess sedation (RASS ≤-3) occurred in three patients (10%). One patient required a nasopharyngeal airway and desaturated to 89% on room air. One patient had an adverse reaction to physostigmine consisting of cholinergic effects (vomiting, transient hypotension, and heart rate of 61 bpm) following 1mg physostigmine given over 10 minutes.

Conclusion:
While numbers are small, this case series supports previous observations that physostigmine seems more effective at reversing agitation associated with delirium. Both benzodiazepines and physostigmine may cause adverse events and they should be administered in a monitored environment and titrated to effect.