From: Ron Kirschner, MD, Medical Director

To: ALL HEALTH CARE PROFESSIONALS

Subject: Alternative source of physostigmine for anticholinergic delirium

Date: 12/12/23

* When given IV the short-acting cholinesterase inhibitor physostigmine can reverse delirium in anticholinergic poisoning. Rapid push could lead to cholinergic effects such as bradycardia or vomiting.
* Due to bankruptcy of the US manufacturer physostigmine became unavailable in early 2023.
* With FDA approval some hospitals have imported Anticholium® (physostigmine salicylate 2 mg/5 mL for injection) from Germany. The concentration is different from the physostigmine product previously available in the US (2 mg/2 mL).
* Anticholium® should be diluted in a volume of at least 10 mL and given over at least 5 minutes to minimize the risk of excessive cholinergic effects.
* Onset of Anticholium® action may be up to 10 minutes. The dose can be repeated if there is no effect. Duration of action is short (1-2 h) so physostigmine may need to be re-dosed if delirium recurs.
* If Anticholium® is unavailable, rivastigmine can be given orally or topically.
* Although the half-life of rivastigmine is only about an hour, the duration of cholinesterase inhibition is around 10 hours so repeat doses may not be necessary, particularly with the 24-hour rivastigmine patch.
* In a recent series of 20 delirious anticholinergic patients treated with oral and/or topical rivastigmine, delirium resolved in 3-12 hours and no adverse reactions were noted (1).
* If there is a need to rapidly titrate delirium control due to severe agitation or critical illness, IV dexmedetomidine, an alpha2-adrenergic agonist sedative, may be an option (2). This agent might decrease heart rate and blood pressure, but respiratory depression is not expected.
* We encourage you to call and discuss your patients so that we can provide more case-specific individualized recommendations.

References

1. Greene SC. Antimuscarinic delirium reversed by rivastigmine: a case series. *J Med Toxicol* 2023; 19: 80 (abstract 29).
2. Whitledge JD. Shortages of agents used to treat muscarinic delirium. *Am J Emerg Med* 2023; 67: 163-167.

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