

# A Survey of Clinician Knowledge Regarding Physostigmine Use in Overdose

David B. Liss<sup>1</sup>, Anna M. Arroyo Plasencia<sup>1</sup>, Evan S. Schwarz<sup>1</sup>, Larissa I. Velez<sup>2</sup>,  
Jhonny Ordonez<sup>3</sup>, Daniel Wang<sup>1</sup>, Stacey J. Hail<sup>2</sup>, Kurt C. Kleinschmidt<sup>2</sup>, Amy Young<sup>2</sup>

<sup>1</sup>Washington University School of Medicine, St. Louis, MO, <sup>2</sup>University of Texas Southwestern, Dallas, TX, <sup>3</sup>Parkland Health and Hospital System, Dallas, TX



## BACKGROUND

- Education on physostigmine use as an antidote is relevant for Emergency Medicine (EM) training.
- Still, physician knowledge remains variable.

## RESEARCH QUESTION

- What is the current EM physician knowledge of physostigmine?

## METHODS

- This was an anonymous survey of EM physicians and residents.
- A survey was created and tested on physicians for completion time and clarity.
- After reformatting, the survey was piloted among different physicians at two different institutions.
- A printed survey and/or e-mail link to an electronic version was provided for survey participants following local IRB approval.
- Physicians who developed the survey did not participate.
- Responses remained confidential .
- No identifiable information was collected.
- For the printed version, three research team members individually entered survey data into the electronic system, SurveyMonkey.
- Responses were grouped using SurveyMonkey filtering.

## RESULTS

- The table lists selected survey results.
- While 63% of EM faculty had rotated on a toxicology service during training, less than half had previously administered physostigmine.
- EM resident toxicology service experience varied according to year.
- Interestingly, while the majority of 4th year residents felt comfortable administering physostigmine without toxicology input, only 17% answered “yes” when asked if physostigmine was indicated in glaucoma treatment, the only Food and Drug Administration approved indication.
- Additionally, ability to identify contraindications to physostigmine use varied significantly between faculty and residents at all training levels.

## TABLE

	Faculty N=39	Interns N= 30	2 <sup>nd</sup> Years N=21	3 <sup>rd</sup> Years N=25	4 <sup>th</sup> Years N=8
<b>Possible Respondents</b>	89	31	31	31	12
<b>Rotated on a toxicology service</b>	62%	63%	67%	88%	100%
<b>Administered physostigmine</b>	44%	13%	5%	24%	50%
<b>Comfortable administering physostigmine without toxicologist consultation</b>	38%	27%	0%	44%	75%
<b>Knowledge of Indication: Glaucoma</b>	23%	30%	5%	8%	13%
<b>Knowledge of Indication: Anticholinergic toxicity</b>	90%	73%	95%	88%	75%
<b>Knowledge of Contraindication: Asthma</b>	51%	43%	29%	8%	38%
<b>Knowledge of Contraindication: Intestinal obstruction</b>	49%	27%	25%	24%	25%
<b>Knowledge of Contraindication: Tricyclic antidepressants</b>	33%	20%	24%	40%	38%

## DISCUSSION

- Individual clinician comfort and experience with physostigmine vary widely between EM residents and attendings.
- Comfort with physostigmine use seems to peak in the last years of residency and then fall after graduation in both 3 and 4 year residencies.
- Self-reported knowledge of contraindications of physostigmine use is insufficient.
- There appears to be a knowledge gap and an educational need for EM physicians at all levels of training concerning the indications and contraindications for administering physostigmine.

## CONCLUSION

- Future educational activities must address the varying levels of knowledge and experience regarding physostigmine use among practicing and training EM physicians.
- Practicing EM physicians may benefit from continuing education resources that specifically focus on physostigmine use.

