Introduction

- Substance use disorders are a major public health concern.
- The hallmarks of treatment for opioid and alcohol addictions are pharmacotherapy and psychosocial interventions.
- There are no widely accepted medications or therapeutic interventions for the treatment of stimulant use disorders.
- There is growing evidence in animals that suggests that neurohormone oxytocin modulates the rewarding effects of many illicit substances, including stimulants.
- Oxytocin is presenting as a potentially safe pharmacotherapeutic option in the treatment of stimulant use disorders.

Objective

To evaluate the available evidence for oxytocin in the treatment of stimulant-use disorder in humans

Methods

- A search of electronic databases (Medline, Embase, Psychinfo) was completed on July 31, 2020.
- Search results were imported into Covidence, an internet based program, for identification of relevant studies.
- Single screening for extraction of relevant studies was completed.
- Eligible studies included completed trials regardless of design or language. Trials in progress and abstracts were excluded.
- Outcomes of interest included stimulant use, withdrawal symptoms, cravings, stress, and adverse events.

Results

- Six studies met inclusion criteria.
- All studies had a randomized controlled design.
- No evidence was found that oxytocin reduced stimulant use or stress.
- No study investigated the effects of oxytocin on withdrawal symptoms.
- There was low quality evidence from one study that oxytocin increased cravings.
- Oxytocin was well tolerated and no serious adverse events were noted.
- Although not outcomes of interest in this review:
  - cortisol response to oxytocin varied with gender and trauma history
  - oxytocin improved outcomes that may have beneficial effects on treatment engagement, such as attendance

Conclusion

- Currently, there is not adequate evidence to support the use of oxytocin in the treatment of stimulant-use disorders.
- Completed studies were typically small in size and short in duration.
- Completed studies had considerable clinical heterogeneity in terms of participant characteristics, types of outcome measurements, and types of intervention characteristics.
- Completed studies had methodological heterogeneity in terms of trial design.
- Another consideration: there is limited evidence regarding the absorption and optimal dosing of intranasally administered oxytocin, which was the mode of administration in all included studies.

Future directions

- Larger randomized clinical trials are warranted

Future research could focus on:

- Longitudinal studies allowing for sufficient duration of treatment to effectively evaluate drug use and cravings over time.
- Study designs that promote external validity in which participants might be actively involved with drug use during the trial.
- The effectiveness of treating stimulant withdrawal symptoms with oxytocin.
- Direct comparisons between different oxytocin doses, including an evaluation of their effectiveness, as well as their safety and tolerability profiles.
- Recruiting adequate participant numbers to study oxytocin’s differential effect across gender and trauma history in individual’s diagnosed with a stimulant use disorder.

References