Introduction

“Bath Salts” are a group of synthetic cathinones with similar psychoactive properties like methamphetamine. The compounds used in this study are MDPV (Methcathinone) and aPVP (alpha-pyrrolidinopropylpiperidine). These compounds are highly potent for the Dopamine transporter and moderately potent for the Serotonin transporter (Simmir et al 2012).

There have been several studies in the efficacy of different vaccines to treat the abuse of methamphetamine (Miller, M et al 2015; 2013), cocaine (Carrera MR et al 2000), and heroin (Schlosburg, Julian’s Primer of Drug Action © 2014 pg. 230).

This study was to determine the role of “Bath Salt” vaccine attenuating the stimulant properties of the two synthetic psychostimulants.

Methods/Materials

- Charlie-Rivers Sprague-Dawley (m36), 76 days old at start of study
- Three groups: aPVP vaccine, MDPV vaccine, KLH control
- Vaccine given at week 0
- Boosts on weeks 2 and 4
- Acute i.p dose of drug (0.25, 0.5, 1, 0.0 mg/kg) with 4 hour run time
- Rectal temperature every hour pre-injection and at every hour post initial drug challenge

Results

Fig. 1: level of anti-body titer detected by ELISA optical density from rat plasma. The arrows indicate when each rat was boosted with their respective vaccine. Between week 6 and week 10 is when the drug study occurred.

Fig. 2: Quarter wheel rotations for aPVP actuate i.p. challenges from 0-5.0 mg/kg

Conclusions

- MDPV/aPVP vaccine show efficacy in decreasing the stimulant locomotor effects of both drugs in low to moderate doses, but not at higher doses
- Data mirrors other studies of drug vaccine because there is no protection at the highest dose

Citations


Acknowledgements

(Funding supported by NIDA)