

POSTER 127

Violence on spectrum: the undefined behavioural limits of autism spectrum disorder

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Resumo

Introduction: Autism spectrum disorder (ASD) is a neurodevelopmental condition, characterized by persistent difficulties in social interaction and communication and the presence of stereotypic behaviours, resistance to change or restricted interests [1]. It has been suggested that the prevalence of ASD in prisoners is higher when compared to the general population, so thus assuming an inherent violent behaviour [2]. **Objectives:** To present an overview of whether ASD directly correlates with violent criminal behaviour. **Methods:** A non-systematic literature review of the electronic database PubMed was conducted. **Results:** Most of the literature is based on single case reports or small case series describing individuals with ASD who have committed violent offenses. Even though some of these studies have suggested an increased violence risk in individuals with ASD, prevalence studies have provided no

conclusive evidence to support this suggestion [3]. Several follow-up studies have also considered that those with this diagnosis are no more likely to engage in violent criminal behavior, with some even suggesting that they may be less likely [4]. All data is therefore conflicted and surrounded by a substantial degree of inconsistency. **Conclusions:** There is a lack of evidence to support the link between violence and ASD. One explanation for the inconsistency of the findings could be the different methodological or diagnostic approaches used. A better understanding of the real association between ASD and violence, and the solid identification of risk factors for crime amongst this targeted population, could stimulate the application of measures to evaluate and prevent the potential involvement of these individuals with the criminal justice system.

Keywords: autism spectrum disorder; violence; criminal justice system

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POSTER 128

Behavioural effects of MDMA on Zebrafish (Danio Rerio) Larvae – preliminary data

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Resumo

Introduction: The study of contaminants' effects on fish behavior is essential to the protection of ichthyofauna and

aquatic ecosystems. Zebrafish (*Danio rerio*) is a vertebrate animal model widely used in different areas of laboratory investigation, namely in ecotoxicology [1, 2]. Psychoactive substances (PAS) like MDMA, a synthetic drug (with high potential of abuse in young people) is difficult to remove in wastewater treatments plants (WWTP) and thus is an increasing environmental concern [3]. Consequently, the use of *D. rerio* as a model in laboratory studies presents a growing importance, including in behavioral studies, such as those associated with visual stimuli [4]. **Objectives:** The main goal of this study was to evaluate the effects of MDMA in spontaneous and visual behavior of zebrafish larvae at 120 hours post-fertilization (hpf). **Materials and Methods:** Zebrafish embryos with 2-3 hpf were previously exposed to different concentrations of MDMA (0.02, 0.2, 2.0, 20, 200 µg/L) during 96 hpf. At 120 hpf, the behaviour of the larvae was recorded, and the following parameters were analyzed: velocity, total distance traveled, distance to the well center,

percentage of activity/inactivity, curvature angles, and reaction to an aversive visual stimulus (red bouncing ball in a PowerPoint slide) [5]. **Results:** Data show no significant statistical differences in all the parameters evaluated, except for the percentage of time in the upper zone, with and without aversive visual stimulus. In the latter, it is worth noting considerable variations for higher concentrations (2 and 20 µg/L) that suggest no behaviour change when exposed to the aversive visual stimulus. **Conclusions:** The higher concentrations of MDMA in water medium affects the behavior of *D. rerio* and theoretically affects their ability to escape from predators, however for environmentally relevant concentrations, which are very low, our result suggests that wild fish will not be affected in their early life stages. Despite that, we have to consider also fish exposed to low levels of MDMA for a chronic exposure in the environment and future studies are necessary to understand better this long-term exposure.

Keywords: psychoactive substances; MDMA; Behaviour; Visual Stimuli; *Danio rerio*

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In vitro neuroprotective effects of dual-acting antiparkinsonians

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Resumo

Introduction: Parkinson Disease (PD) is the second most common neurodegenerative disorder [1], being characterized by the degeneration of dopaminergic neurons of substantia nigra pars compacta [2]. PD is also associated with iron accumulation within the brain, which triggers a specific form of regulated cell death called ferroptosis, further leading to dopamine (DA) depletion [3]. Currently, no effective treatment exists for stopping or delaying PD progression. Instead, the available drugs are

predominantly directed to symptoms relief, keeping the course of the disease unchanged [4]. **Objectives:** Thus, the main goal of this study was to evaluate the potential in vitro neuroprotective effects of newly synthesized smart dual-acting molecules (3-hydroxypyridin-4-ones). These compounds were developed in the scope of the FCT-funded project “COMT4brain” and demonstrated the ability of simultaneously chelate iron and inhibit COMT, allowing to restore DA levels. **Material and**