rate of head injury ($\chi2=7.044$, $p=0.017$). Furthermore, although at borderline statistical significance, patients with ADHD had more frequently a pathological gambling ($\chi2=5.163$, $p=0.050$), a higher use of benzodiazepines ($\chi2=4.107$, $p=0.054$) and had been more often incarcerated ($\chi2=4.118$, $p=0.063$).

Conclusions: Although our sample size is too small to draw definitive conclusions, we found high prevalence of ADHD in a psychiatric outpatient service. Some clinical correlates were detected, highlighting the high risk of misdiagnosis and inappropriate treatment. Therefore, the education on ADHD in mental healthcare professionals needs to be implemented [5].

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No conflict of interest

doi: https://doi.org/10.1016/j.nsa.2022.100434

P.0359

NEUROSCIENCE APPLIED 1 (2022) 100112 100435

Global C2orf82 (Snorc) deletion results in distinct behavioural alterations in mice

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Introduction: C2orf82, also known as small novel rich in cartilage or SNORC, is a gene located on chromosome 2, which is known to play a role in chondrocyte maturation. However, a recent GWAS identified C2orf82 as a novel candidate gene implicated in the pathogenesis of disorders such as ADHD and schizophrenia [1]. Neurodevelopmental psychiatric disorders such as schizophrenia, attention-deficit hyperactivity disorder and autism spectrum disorders are highly prevalent disorders that are characterized by social and cognitive impairments. These disorders not only affect the individuals diagnosed with them, but also their extended families making them highly pervasive and an enormous burden to society. Given this finding, we developed a C2orf82 knockout mouse line in order to further investigate its role in traits and morphological alterations that are associated with ADHD and schizophrenia, especially those related to sensorimotor gating, impulsivity, attention, as well as anxiety-like behaviour and fear conditioning, and dendritic morphology in the prefrontal cortex and hippocampus.

Methods: Female and male C2orf82 knockout mice, heterozygous and wildtype mice 12-16 weeks old, were used in these studies. The mice were transported from Barcelona and allowed to habituate for at least two weeks before tests were performed. The test battery was performed so that the more stressful tests were performed last and there was at least one day between each test. The tests consisted of the open field test, the light-dark Box test, prepulse inhibition, as well as cued-fear conditioning.

Results: In the open-field test female KO mice showed a lower total distance ($F(1, 35) = 9{,}263$; $p < 0.05$) compared to male WT. Additionally, male, as well as female, KO mice ($F(1, 35) = 17{,}29$; $p<0.01$) displayed reduced distance travelled, than their respective WTs, but no genotype differences were observed for time in the different compartments nor entries. No baseline startle differences nor changes in prepulse inhibition were observed. Cued-fear conditioning revealed that KOs showed increased fear expression and reduced extinction learning compared with WT in both sexes ($p < 0.05$).

Prior to the conference, we will complete assessment of impulsivity and attention using the continuous performance test and analyse dendritic morphology, including length and number of branches as well as dendritic spine density and composition, in the prefrontal cortex and hippocampus.

Conclusions: Recent genome-wide association studies, employing hundreds of thousands of cases and controls have shed light on several risk genes for psychiatric disorders such as Schizophrenia and ADHD, which contribute to significant burden of disease.

C2orf82-deficiency, a newly identified candidate gene for such disorders, results in decreased locomotor activity, as well as increased cued fear conditioning in female mice. Further behavioral tests will enable us to better understand how C2orf82 is implicated in behavioral and morphological traits related to ADHD and schizophrenia.

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Conflict of interest

Disclosure statement:

No conflict of interest

doi: https://doi.org/10.1016/j.nsa.2022.100435

P.0360

NEUROSCIENCE APPLIED 1 (2022) 100112 100436

Elucidating the functional effects of omega-3 fatty acids as a treatment in ADHD against Wnt-signalling alterations

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Background: Attention-deficit hyperactivity disorder (ADHD) is the most frequently reported neurodevelopmental disorder, with a worldwide prevalence of ca. 5%, affecting children and adolescents. Moreover, 60% of childhood ADHD cases persist into adulthood, leaving treatment approaches more difficult and thus, reducing estimated life expectancies. To increase treatment success in ADHD, alternative or combined treatment, alongside with the first line treatment Methylphenidate, may be favourable. The non-pharmacological treatment of omega-3 (ω-3) polyunsaturated fatty acid (PUFAS) components, docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), display potential candidates, as they take part in several biological processes, including cellular signalling processes, such as Wnt-signalling, which is recognized to be pivotal during development. However, the underlying molecular mechanisms of ω-3 PUFAs involved in ADHD remains unknown.

Aims: We aim to investigate Wnt related protein in human induced pluripotent stem cell (iPSC), neural precursor cells (NPC) and forebrain cortical neurons (FCNs) from ADHD patients and healthy individuals as control, to elucidate potential alterations in Wnt-Signalling at a proteomic manner. Moreover, we will test the hypothesis that ω-3 PUFA may improve growth rates and Wnt signalling alterations in ADHD.

Methods: For the proteomic analysis of Wnt related protein we are conducting western blot analysis in iPSCs, NPCs and FCNs without as well as with ω-3 PUFA treatments (DHA and EPA; 0-50uM). Additionally, the Wnt activity in NPCs will be evaluated by performing luciferase reporter assays in ADHD and control groups after acute agonist treatment as well as ω-3 PUFA treatments. Growth rate analysis of NPCs will be measured using xCELLigence/Wst-1 assays with ω-3 PUFA treatments. Moreover, transcriptomic measurements of Wnt related genes will also be consider with similar conditions of ω-3 PUFA treatments as for the growth rate analysis, to further compare alterations between ADHD and controls during development. Results will be statistically analysed by using descriptive statistics and parametric/nonparametric statistics with significance values at $p < 0.05$.

Preliminary Results: Preliminary results of western blot experiments