

**Conclusions:** There is an increasing use of melatonin and sedating antihistamines among Scandinavian children, adolescents and young adults. The increase is more pronounced in Sweden compared to Norway and Denmark. This Scandinavian discrepancy could reflect variation in frequency of sleep problems or national variation in clinical practice or health care access.

**Disclosure:** No significant relationships.

**Keywords:** pharmacoepidemiology; Child and adolescent; melatonin; drug utilisation

O0053

### White matter microstructure associated with the range of attentional and impulsive performance in school-aged children

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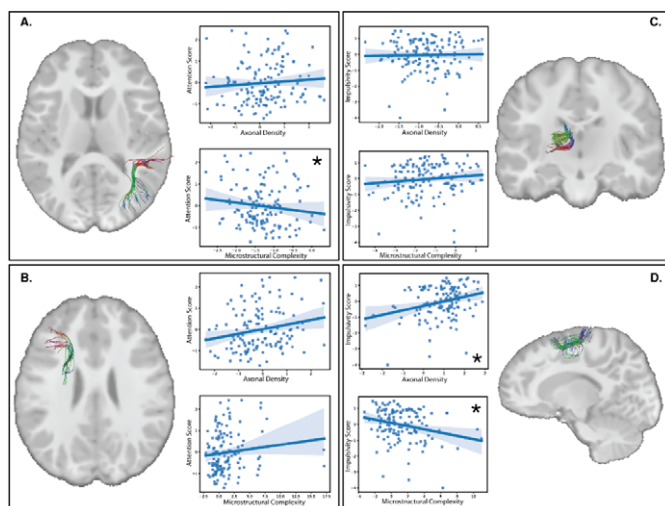
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**Introduction:** Inhibition capabilities have been shown to be a strong predictor of social and educational life outcomes (Mischel & Ebbesen, 1970; Shoda et al., 1990). Inhibition capabilities have an enormous impact on attention and impulsivity (Bari & Robbins, 2013). These two executive functions are associated with numerous psychiatric disorders but are not well understood in terms of white matter (WM) connectivity (Puiu et al., 2018). Novel techniques and statistical approaches in neuroimaging bring us closer to a biologically sustained model.

**Objectives:** This research aims to: 1) identify WM connections associated with attention/impulsivity performance and 2) characterize the differences in WM microstructure associated with the variation of the performance.

**Methods:** 157 children (GESTE cohort, 8-12 years, 27 Dx ADHD, 2 Dx ASD) with  $b=1500\text{mm}^2/\text{s}$ , 2mm isotropic dMRI acquisitions were included. Tractography was performed with TractoFlow pipeline (Theaud et al., 2020). Dimensionality reduction of diffusion metrics yielded two components : microstructural complexity (DTI Metrics, AFD & NuFo) and axonal density (AFD\_fixel) (Chamberland et al., 2019). Attention/impulsivity were evaluated with the CPT3. Multivariate linear regression was performed in python.

**Results:** Lower microstructural complexity was associated with poorer attentional performance on regions of the parietal lobe to the occipital gyrus (P-O,  $p=0.044$ ,  $R^2=0.14$ , Figure 1.) and the Broadman's area 8 to area 6 (SF8-SF6,  $p=0.002$ ,  $R^2=0.12$ , Figure 1.). Lower axonal density was associated with a less impulsive pattern on SF8-SF6 ( $p=0.001$ ,  $R^2=0.13$ , Figure 1.). Results remained significant when removing children with an ADHD or ASD diagnosis.



**Figure 1.** Multivariate linear regression analysis (adjusted for age, sex, laterality & IQ) between the WM microstructure components and attention/impulsivity score (reverse scoring) on connections - **A)** Inferior parietal lobe (area 40) to middle occipital gyrus, **B)** Orbital gyrus (area 12/47) to dorsal dysgranular insula, **C)** Right ventromedial putamen to right caudal temporal thalamus, **D)** Superior frontal (area 8) to superior frontal (area 6). \*  $p < 0.05$ . RGB color-coding : red for right to left direction, green for anterior to posterior direction and blue for superior to inferior direction.

**Conclusions:** We identified underlying difference in WM microstructure that may be associated with the variation in attention/impulsivity performance in school-aged children.

**Disclosure:** No significant relationships.

**Keywords:** Diffusion MRI; Attention/Impulsivity; White matter (WM); Pediatric

O0054

### ADHD and Intellectual Disability: using ADHD medication

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**Introduction:** Mental disorders and ADHD in people with ID are higher than in the general population. Clinicians may be reluctant to diagnose ADHD in people with ID. They could be denied effective treatment.

**Objectives:** The purpose of the study was to ascertain antipsychotic use in people with ID before and after the a diagnosis of ADHD.

**Methods:** A casenote review in an ID service for adults with ADHD. Data collected on psychotropic use before and after the diagnosis.

**Results:** Forty-eight adults with ADHD-ID were identified. 38(79%) were male and 10(21%) were female. 19 to 58 years of age. Four (8%) had mild ID; 44 (92%) had moderate to severe ID. 27(56%) had anxiety, mood disorders or psychosis. 21(44%) had ADHD only. Challenging behaviour was reported in 24 (50%) of cases. Thirty-three (68%) used psychotropic medication prior to the diagnosis of ADHD and after the diagnosis. Post-diagnosis, 20(60%) continued to use antipsychotic medication indicating the elimination of antipsychotic use in 13(40%) of people. The level

of medication use remained the same in spite of the reduction of antipsychotic medication. The diagnoses of challenging behaviour was not affected by the reduction in antipsychotic medication and the increase in ADHD medication use.

**Conclusions:** The use of antipsychotic medication in people with intellectual disabilities and ADHD is high. ADHD should be considered when people present with challenging behaviour. ADHD medication can be effective in treating ADHD-ID and can lead to a significant reduction in the use of antipsychotic medication.

**Disclosure:** No significant relationships.

**Keywords:** challenging behaviour; intellectual disability; ADHD; medication

## O0055

### Distinct behavior in early life stress dams predicts heterogeneity in future stress response in offspring over lifespan

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**Introduction:** Exposure to early life stress (ELS) strongly predicts prevalent, impairing, and costly psychiatric illness throughout life including mental disorders. The reason, some individuals are more vulnerable to ELS whereas others remain resilient, is poorly understood. There is a need for better understanding of early biological changes triggered by ELS with responsibility to negative outcomes in health.

**Objectives:** We stratify animals after ELS according to corticosterone levels. [1] Re-challenging the animals to a second stressor, chronic social defeat (CSD) [2], in adulthood was performed to understand individual trajectories depending on corticosterone exposure during early adverse conditions.

**Methods:** We performed ELS as previously reported [1]. Behavior of mothers was observed during ELS. Correlation between level of corticosterone and behavior observed in dams. ELS animals were exposed to a second stress in adulthood. A battery of tests for different behavioral domains was performed. Behavioral analyses was combined with assessment of litter HPA system reactivity and observed behavior in dams.

**Results:** Stress dams were significantly higher in number of sorties over whole observation period, time dams spent outside the nest differed. We could correlate the number of sorties on p3 with corticosterone plasma level at p9. Control dams spent significantly more time outside in 9pm recordings than stress animals. We could show reduced interaction with social juvenile targets in sociability test for CSD mice. Light dark transition was significantly higher for control mice compared to CSD but lower for control vs ELS animals.

**Conclusions:** Behavior in dams during ELS correlates with chronic stress coping mechanisms in offspring's adulthood.

**Disclosure:** No significant relationships.

**Keywords:** chronic social defeat; mice experiment; observer-independent behavioral characterisation; early life stress

## O0056

### Oxytocin as a peripheral biomarker for Autism Spectrum Disorder: a systematic review and meta-analysis

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**Introduction:** Autism spectrum disorder (ASD) is a group of life-long neurodevelopmental conditions characterized by impairments in social communication and by the presence of restricted interests or repetitive behaviors. Several genetic, biological, and psychosocial mechanisms seem to play a role in the etiopathogenesis of this complex condition. Preclinical models have shown a potential role of oxytocin (OT), a peptide involved in a complex range of behaviors, including those related to social interaction. Therefore, it has been hypothesized that OT levels may be decreased in autistic people.

**Objectives:** To compare the levels of peripheral OT in autistic people vs neurotypical controls.

**Methods:** We performed a systematic literature search up to December 2020 according to PRISMA guidelines. Final inclusion was based on the following criteria: (1) Participants: individuals of any age diagnosed with ASD; (2) Controls: neurotypical subjects; (3) Outcome: OT levels, either in saliva, serum, or plasma; (4) Study design: case-control. Meta-analyses are ongoing.

**Results:** We finally included 21 papers published between 1998 and 2020, of which one recruited adult participants. Fifteen studies measured OT levels in plasma, 4 in saliva, and 2 in serum. Preliminary meta-analyses on 10 studies showed that peripheral OT levels in autistic individuals are reduced compared to neurotypical controls, with sex differences.

**Conclusions:** Our preliminary findings show that peripheral OT might represent a potential biomarker for ASD. Future well-conducted case-control studies with a detailed phenotypical characterization of samples are needed to understand the role of OT deficits in specific subgroups.

**Disclosure:** No significant relationships.

**Keywords:** Autism Spectrum Disorder; peripheral biomarker; Oxytocin; systematic review

## O0057

### Tattooing and piercing are associated with symptoms of ADHD: A cross-sectional study of non-clinical adults

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**Introduction:** Previous studies suggest that individuals with tattoos and piercings exhibit higher impulsive personality traits compared