# O-01 - THE ROLE OF IMMUNE DYSFUNCTION IN THE PATHOPHYSIOLOGY OF AUTISM SPECTRUM DISORDERS: FINDINGS FROM A DANISH HISTORIC BIRTH COHORT

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**Introduction:** Mounting evidence has suggested a pivotal role of immune dysfunction in the pathophysiology of autism spectrum disorders (ASD). In this study, levels of inflammatory cytokines were measured intrauterinely in amniotic fluid (AF) samples and postnatally in dried blood spots samples (DBSS) of children diagnosed later in life with ASD and their controls.
**Materials and methods:** Study population was retrieved from a historic birth cohort (HBC) kept at Statens Serum Institute (SSI) in Copenhagen, Denmark. The HBC comprises AF and maternal serum samples collected during antenatal screening/diagnostic tests since 1980. All singleton ASD cases who had a corresponding AF sample in the HBC and born 1982-2000 were identified utilizing Danish nation-wide health registers. Controls were selected from the HBC and frequency-matched to cases on gender and year of birth. Corresponding DBSS were indentified in the Danish Newborn Screening Biobank. Levels of selected inflammatory cytokines in AF samples and DBSS were analyzed at SSI using Luminex xMAP technology. Case-control differences were assessed as categories (logistic regression) or continuous measures (tobit regression).
**Results and conclusions:** Total of 414 cases and 820 controls were included in the study. Measurements performed on AF showed elevated levels of TNF, IL-4, and IL-10 in ASD. Discrepant pattern was seen in DBSS with elevated levels of IL-8 and sIL-6rα. While findings in this study show that immune dysfunction in ASD starts intrauterinly, the discrepant intrauterine/neonatal patterns are of a special interest. Finally, further studies to examine the specificity of these findings to ASD are necessary.



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