

The 29th Annual Canadian Conference on HIV/AIDS Research Le 29e Congrès annuel canadien de recherche sur le VIH/sida

Session: **CS1**: Friday May 1 – 11:00:12:30 – HIV in Women and Children

Track: Clinical Sciences

Subject: HIV in Children and Adolescents

Presentation Type: Oral

Title of Abstract: **Neurodevelopmental and Mental Health Co-morbidities in Canadian Children and Adolescents Living with HIV in the EPIC4 cohort**

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Abstract

Background: Perinatal HIV infection (pHIV) differs from infection later in life in that it can affect the developing brain. This study describes neurodevelopmental (NDD) and mental health diagnoses (MHD) in the Early Pediatric Initiation Canada Child Cure Cohort (EPIC⁴).

Methods: EPIC⁴ prospectively enrolled and followed children with pHIV from 7 Canadian centres from 2014-2018. We determined the prevalence of NDDs and MHDs, and investigated predictors of diagnoses on univariate Poisson regression analysis.

Results: 226 children were enrolled; median age at diagnosis and at last study visit were 1.4 years (range birth-16.1 years) and 15.6 years (range 1.0-27.9 years), respectively. . 23/200 (11.5%) were born prematurely. 57/226 (25.2%) had a NDD: expressive (28/226, 12.4%) or receptive (24/226, 10.6%) language delays; gross motor (23/226, 10.2%), fine motor (22/226, 9.7%), or global (23/226, 10.2%) delays; HIV encephalopathy (20/226, 8.8%). Head imaging, performed in 84/226 (35%), showed abnormality in 58/84 (69.6%). 35/226 (16.2%) had a learning disability: dyslexia (8/226, 3.7%); auditory processing (3/226, 1.4%) or visual processing (3/226, 1.4%) disorder; unspecified (23/226, 10.6%). 26/195 (13.4%) had failed at least one grade in school. 65/226 (28.8%) had a MHD: attention deficit hyperactivity disorder (30/224, 13.4%); depression (24/225, 10.7%); anxiety (24/225, 10.7%); post-traumatic stress disorder (11/225, 4.9%). Predictors of NDD included prematurity (RR 2.55, 95%CI=1.48, 4.37), diagnosis at <1year (RR 2.23, 95%CI=1.43, 3.48) and earlier cART initiation (<1year, RR=3.80, 95%CI=2.17, 6.67; 1-5years, RR 2.00, 95%CI=1.10, 3.66), higher peak viral load (>100000 copies/mL, RR 1.71, 95%CI=1.08, 2.71). Predictors of MHD included prematurity (RR 2.03, 95%CI=1.16, 3.55), diagnosis at <1year (RR 2.02, 95%CI=1.33, 3.06) and cART initiation <1year (RR=3.10, 95%CI=1.86, 5.15).

Conclusion: NDDs and MHDs were prevalent and earlier HIV diagnosis and treatment were predictive for these problems. This suggests a possible association of NDDs and MHDs with more symptomatic HIV disease as reflected by earlier HIV diagnosis.