WEAB0204

Cognitive function among cART-treated children and adolescents with HIV in Zambia: Results from the HIV-associated neurocognitive disorders in Zambia (HANDZ) study

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Background: A number of studies have demonstrated that children with Human Immunodeficiency Virus (HIV) are at increased risk for impaired cognition. Prior studies have been limited by including a mix of treated and untreated subjects, focusing on a restricted age range, and/or failure to include an appropriate control group. As part of the ongoing HIV-Associated Neurocognitive Disorders in Zambia (HANDZ) study, we sought to evaluate cognitive function in virally suppressed cART-treated children and adolescents living with HIV in Zambia compared to demographically matched HIV-exposed uninfected controls

Methods: A total of 400 participants were recruited for the study consisting of 200 cART-treated subjects with perinatally acquired HIV and 200 HIV exposed uninfected (HEU) controls, all 8 to 17 years old. Subjects with a history of CNS infection, pregnancy, epilepsy, or chronic kidney or liver disease were excluded. Demographics and subject characteristics were assessed using standardized subject and parent interviews, and comprehensive neuropsychological testing was performed using a combination of standard testing and iPad-based performance measures using the NIH Toolbox. Cognitive impairment was defined using a global deficit score approach.

Results: In comparison to the HEU group, children with HIV performed significantly worse on a composite measure of cognitive function (Global Cognition standard score 82.8 vs. 74.8, $p = 0.002$), and were significantly more likely to be classified as impaired (34% vs. 5%, $p = 0.001$). Cognitive domains that were most affected included Attention, Working memory, Processing speed and Psychomotor Speed. In a multivariable logistic regression model, risk factors for impairment included socioeconomic status (OR 0.78), history of advanced WHO clinical stage (OR 1.9), late initiation of antiretroviral therapy(OR 2.0), and growth stunting (OR 2.7).

Conclusions: Cognitive function remains significantly worse in children with HIV compared to demographically similar controls, even in a relatively healthy population of cART-treated virally suppressed subjects. There is a need for trials of interventions to improve development and cognitive function in children with HIV. This study suggests interventions to improve cognition in children with HIV might include earlier identification of subjects with HIV to initiate cART, and interventions to target lower SES families, such as cash transfers and nutrition support programmes.

WEAB0205

Response to direct acting antivirals in vertically HIV/HCV co-infected youths

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Background: New direct acting-antivirals (DAA) have altered HCV treatment in recent years. The absence of authorized drugs in children along with the natural evolution of the infection in childhood, generally asymptomatic until adolescence, results in little treatment experience in the population of vertically HIC/HCV co-infected subjects. The objective of this study is to describe response to DAA treatment in this unique population.

Methods: Longitudinal observational study within The Spanish National Cohort of HIV-infected children and adolescents (CoRISpe) including vertically HIV/HCV co-infected children that had received treatment against HCV when visiting adult units. Demographic, analytical, clinical and virological parameters were collected before, and 12 weeks after finishing HCV treatment.

Results: From the 651 patients transferred to adult units, 80 were HCV co-infected. Thirty-four were excluded due to data unavailability and 46 were included in the analysis (3 of them lost to follow-up and 5 deceased). 52.2% were women, median age of 26.5 years (IQR 24 to 30). In total, 30 patients had received treatment, at a median age of 22 years (IQR 19.7 to 25). At HCV-treatment initiation, all patients were on ART, 92% virollogically-suppressed, and a median CD4 T-cell count of 646 cel/ul (IQR 551 to 1039), 13.3% below CD4 < 500cel/ul. Genotipically, 60.6% were G1, 22.5%-G4 and 15%-G3. At treatment initiation, 24.1% presented fibrosis (F3-F4), 17.2% F2 and 55% F0-F1. Overall, 70% were treated with DAA; SOF/LED (14 patients), EBV/GZP (2p), OBV/PTR/r (2p), OBV/DSV/PTR/r (2p) y VLP/SOF (1p), plus RBV in 23%. Nine patients received interferon-therapies; IFNpeg+RBV (7p), IFN/DCV+RBV (1p) and IFN/TPV+RBV (1p). DAA-therapies were 8 to 12 weeks long while IFN therapies were from 12 to 48 weeks. The SVR rate with DAA was 100%, but 88.8% when IFNpeg+RBV regimens were used. After SVR at week 12 (SVR12), 38.5% improved their fibrosis stage, 15.4% worsened and 46.2% maintained their previous stage of fibrosis.

Conclusions: In our study, new DAA treatment guidelines achieved excellent cure rates (100%) in vertically HIV/HCV co-infected patients. However, 24.1% of these patients showed advanced fibrosis (F3-F4) at treatment initiation with no improvement despite treatment in 60%. To speed up access to new DAA treatments for pediatric populations is an urgent need.