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Expression of programmed death-1 receptors in the monocytes isolated from the newborns with birth weight ≤1500 g

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Aim: The aim of the study was to compare the expression of programmed death-1 (PD-1) receptors on the monocytes isolated from the newborns with birth weight≤1500 g during either non-septic time or late-onset sepsis (LOS).

Methods: Peripheral blood mononuclear cells (PBMCs) were isolated from 55 patients with birth weight≤1500 g without early-onset sepsis on the 5th day of life (DOL). PD-1 expression was measured on the monocyte subsets by flow cytometry. If a patient developed LOS, same analysis was repeated. Further studies were performed after subdividing children into born≤27 and ≥28 gestational week (GW).

Results: No differences in the percentages of monocytes that expressed PD-1 were found on the 5th DOL between newborns born ≤27 and ≥28 GW. However, in the group born ≤27 GW, the patients who did not develop LOS, had higher percentage of intermediate monocytes with PD-1 receptor expression in comparison to newborns, who later developed LOS (19.5% vs. 7.26%; p=0.0142). Moreover, we observed further reduction of intermediate monocytes with PD-1 expression comparing to the initial values during LOS (3.54% vs. 7.26%; p=0.0161). In contrast, there was an increase of the total count of intermediate monocytes with PD-1 expression during LOS in the group of infants born after 28 GW (9IQR6-16 cells/ul vs. 25IQR15-38 cells/ul: p=0.0263).

Conclusion: We demonstrated that PD-1 receptors were present on the monocytes isolated from the preterm newborns with birth weight≤1500 g. The infants born ≥28 GW showed more intermediate monocytes with expression of PD-1 receptors during LOS. Further studies are needed to establish the role of PD-1 during sepsis in babies born very preterm.

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Functional and structural neural correlates of early and severe social deprivation

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Dr. Behen will present an overview of his research on the functional and structural neural correlates of early deprivation, associated with institution rearing. Specifically, he will present empirical data on neurocognitive and behavioral outcomes in a large sample (N=193) of children with histories of early deprivation, as well as both functional (i.e., FDG PET, fMRI) and structural (volumetric, diffusion tensor imaging) brain imaging correlates of early deprivation in children with such histories. He will further examine the relationship of timing (i.e., duration of time of deprivation) parameters to neural outcomes, and associations between deprivation-specific behavioral phenotypes and neural findings. Potential mechanisms for findings are also considered.

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