



Characterization of Regulatory T Cells in Preterm and Term Infants

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Abstract:

Abstract Our study aimed to study regulatory T cells (Tregs) and their expression of CD45RA, HLA-DR, and CD39 in preterm and full-term infants. In an observational study, we used a three-color flow cytometry for determination of Tregs and their expression of CD45RA, HLA-DR, and CD39 in preterm and full-term infants. The percentages of CD4+CD25+highFoxp3+, CD39+ Tregs, HLA-DR+ Tregs and the expression of Foxp3+ in CD4+CD25+highFoxp3 Tregs cells were significantly lower in neonates when compared to healthy adult controls. The levels of naïve resting Tregs (CD45RA+Tregs) were significantly higher in neonates than controls. The percentages of CD4+CD25+highFoxp3+Tregs, total CD4+CD25+ and CD4+CD25+high were significantly higher in preterm infants when compared to the full-term group. Moreover, CD45RA+Tregs were significantly higher in preterm than in term infants. We found significant inverse correlations between the gestational age and the levels of both Tregs ($r = -0.395$, $p=0.017$) and CD45RA+Tregs ($r = -0.422$, $p=0.010$). Relative to full-term, the frequencies, and phenotypes of Tregs were affected by prematurity. A larger longitudinal study with a sufficient number of newborns is needed to investigate the Treg pool of term and preterm infants thoroughly and to explore the association between the Treg pool and clinical variables

Keywords:

Regulatory T cells · Preterm · Full-term newborn

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