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Does immunological memory stand behind onset of human parturition?

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Statement of the problem: The immune system plays a crucial role in establishing and maintaining pregnancy. Adaptation of the maternal immune response is essential for good pregnancy outcomes. Conversely, insufficient immune adaption is associated with pregnancy pathologies such as recurrent miscarriage, <u>fetal growth restriction</u>, preterm birth, and preeclampsia. <u>Memory T cells</u> are responsible for fetal-maternal tolerance. Recent data showed that a delicate balance of memory T cells is necessary for reproductive success. Parturition is the final step of a reproduction cycle. However, the role of memory T cells in human parturition remains unknown. This study aims to investigate differences and changes in CD8+ memory T cells and exhausted molecules expression in groups with spontaneous labor and induction of labor.

Methodology & theoretical orientation: A prospective longitudinal study was conducted on women whose labors are induced compared to spontaneous ones. Maternal blood was collected before onset and during latent and active phases of the labor. In addition, cord blood, <u>decidua basalis</u> and parietalis were collected after birth. CD8+ memory T cells and exhausted molecules expression were measured using multicolour flow cytometry, 3 panels; each of them contained 12 markers. The longitudinal and cross-sectional comparison was made between spontaneous labor and induction of labor groups [Figure 1].



Figure 1. CD8+ central memory (CM), effector memory (EM), terminally differentiated effector memory (TEMRA) cells, CM expression of TIM-3, PD-1, CD69 and EM expression of CD69 were lower in the decidua parietalis in a group with spontaneous labour compared to the group with induction of labour, stem memory cells (SMC) were higher in the group with spontaneous labour compared to the group with induction of labour.

Findings: CD8+ memory T cells activation status and exhausted molecules expression were significantly lower in spontaneous labor group. The changes were found most pronounced in decidua parietalis.

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Conclusion: CD8+ T memory cells and exhausted molecules might contribute to human parturition and appear as a potential therapeutic target at the onset of labor.

Biography

Olena Getsko graduated from Donetsk National Medical University, Ukraine in 2012. She obtained specialization in Obstetrics and Gynaecology at the Department of Obstetrics, Gynaecology and Perinatology, Donetsk National Medical University in 2015 and worked as a MD and as an Assistant to Professor at the Department. In 2021 she started her PhD study at the Department of O&G, CUHK. Her study is focused on CD8+ memory T cells in human parturition.

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