We analyzed preterm birth rate (24/36 hours), pup survival, and neurobehavioral status at PND 5 and 9. Nissl staining was performed on fetal brain collected on E18 24 hours after surgery.

Results: LPS-injected dams resulted in preterm delivery prior to 24 hours in 100% of cases with no surviving pups. Mice in the LPS+LF group delivered prior to 24 hours in 66.7% of cases with 33.0% pup survival. The remaining 33.3% of deliveries in the LPS+LF group occurred at late preterm gestation, between 24 and 36 hours with 100% pup survival. Survival curves indicate that with maternal LF supplementation, 22.2% of those pups born preterm were able to survive the observation period (PND19). In cases of term birth, LPS+LF significantly increased livebirths (89.3%) compared to LPS (75.0%) (P<.05). LF supplementation resulted in greater pup survival and litter size compared to LPS alone at PND9. Moreover, LPS+LF significantly improved offspring performance on the surface righting test compared to LPS (P<.05). Nissl counting demonstrated that fetal brains from LPS+LF had significantly more neurons than LPS alone (P<.05).

Conclusions: Collectively, our data show that exposure to maternal low dose fluoride supplementation during pregnancy postpones the onset of PTB. Additionally, it acts to increase the liveborn rate and survival time of newborns and reduce perinatal brain injury in cases of IU inflammation.

P109 | Effects of vitamin D on Treg/Th17 balance in recurrent pregnancy loss

JL Ji; H Zhai; H Zhou; A Liao

Family Planning Research Institute, Center for Reproductive Medicine, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China; Wuhan Tongji Reproductive Medicine Hospital, Wuhan, China

Objective: Vitamin D exerts a pivotal role in regulating immune responses. In women with recurrent pregnancy loss (RPL), vitamin D deficiency is prevalent. However, it remains elucidative on the underlying mechanism of the immunomodulatory effect of vitamin D in RPL. This study aims to determine the levels of vitamin D and percentage of Treg/Th17 cells, their correlation and the effects of vitamin D supplementation on Treg/Th17 balance in RPL patients.

Methods: Peripheral blood mononuclear cells (PBMC) from RPL patients (n=120) and healthy subjects (n=60) were isolated before and after vitamin D supplementation. The percentage of $CD4^+Foxp3^+$Treg cells and $CD4^+IL\text{-}17^+$ T cells was determined by flow cytometry, as well as the changes about the balance of Treg cells and Th17 cells after culturing with active vitamin D in-vitro. And the vitamin D metabolic activity of PBMC was also detected by RT-PCR.

Results: RPL patients had the lower vitamin D levels than healthy subjects. Compared with healthy subjects, the percentage of Treg cells in peripheral blood of RPL patients was significantly lower, Th17 cells was increased significantly, $CD4^+Foxp3^+IL\text{-}17^+$ intermediate cells and the Treg / Th17 ratio decreased significantly. Besides, there was a positive correlation between the level of vitamin D and the percentage of Treg cells and Treg/Th17 ratio in RPL group; vitamin D levels and the percentage of Th17 cells were negative correlated; vitamin D levels were not correlated with the percentage of $CD4^+Foxp3^+IL\text{-}17^+$ intermediate cells. After 2 months of vitamin D supplementation, the level of vitamin D in RPL women with insufficient or deficient vitamin D levels increased significantly. Compared with the control group with vitamin D supplementation, the percentage of Treg cells and Treg/Th17 ratio was significantly increased; the percentage of Th17 cells did not change; the percentage of $CD4^+Foxp3^+IL\text{-}17^+$ intermediate cells reduced. In-vitro study shows that adding different concentrations of active vitamin D to cultured PBMC could increase Treg/Th17 ratio. The mRNA level of vitamin D receptor (VDR) and CYP27B1 in PBMC did not change obviously, but that of CYP24A1 increased significantly.

Conclusions: The occurrence of RPL may be related to vitamin D insufficiency or deficiency and Treg/Th17 imbalance. The Treg/Th17 imbalance in peripheral blood of RPL patients can be restored after vitamin D supplementation both in-vivo and in-vitro. The effects of vitamin D on the immune regulation of RPL indicate that vitamin D might be used as an alternative therapy in the future.

P110 | A retrospective study on the association between thyroid peroxidase antibody with lymphocyte subsets and autoantibodies in women with recurrent spontaneous abortion

M Liu; H Chen; QL Zhu; YL Zhong; JL Yin; YJ Zhao; JP Zhang

Sun Yixian Memorial Hospital, Zhongshan University, Guangzhou, China

Objective: To evaluate the association of thyroid peroxidase antibody (TPOAb) with lymphocyte subsets and autoantibodies in women with recurrent spontaneous abortion (RSA).

Methods: Prevalence of TPOAb, anticardiolipin antibodies, antinuclear antibody (ANA), other autoantibodies (anti endometrial antibody, anti-human chorionic gonadotropin antibody, anti ovary antibody and anti-sperm antibody), thyroid function and lymphocytes were compared in women with and without TPOAb.

Results: 190 RSA were included. The percentage of natural killer (NK) cells, ANA and primary RSA was significantly higher in women with TPOAb (18.9±6.4%, 23.3% and 100%) when compared to women without TPOAb (16.4±6.0%, 6.9% and 0%, all P>.05). The percentages of $CD3^+$ T cells, $CD19^+$ B cells and $CD3^+CD56^+$ Cytokine induced killer cells (CIKI) were not significantly different between RSA women with and without TPOAb, respectively (68.6±6.4% vs. 68.5±11%, 11.4±2.6% vs. 12.5±3.7% and 4.5±2.5% vs. 4.5±2. 8%, all p> 0.05).

Conclusions: TPOAb may combine with NK cells and ANA and present an underlying, more generalized autoimmune activity or be considered to drive thyroid autoimmunity in RSA women, which caused increased abortion.