Sonnhild Judith Nace geb. Eckardt
Dr. med.

The expression pattern of two novel cytokines -Interleukin 24 & Interleukin 29- in human fetal membranes

Geboren am 13.03.1983 in Dresden
Staatsexamen am 30.06.2009 an der Ruprecht-Karls-Universität Heidelberg

Promotionsfach: Frauenheilkunde
Doktorvater: Priv.-Doz. Dr. med. H. Maul

OBJECTIVE: Inflammatory cytokines have been shown to be part of both preterm and term labor pathways. Interleukin (IL) 24 and 29 are two novel inflammatory cytokines, produced by immune cells in response to microbial antigens. The functions of these cytokines in the reproductive system is unknown. This study examines the expression pattern of IL-24 and IL-29 in human fetal membranes from preterm and term births and in *in-vitro* in response to microbial antigens.

METHODS: Fetal membranes (n=12) from Cesarean sections at term (≥ 37 weeks of gestation, not in labor) were collected, cultured and stimulated with Lipopolysaccharid (LPS) as a bacterial mitogen or poly-Inosinic-Cytidylic-acid (polyIC) as a viral stimulant. Membranes were also collected from vaginal deliveries preterm (≤ 37 weeks of gestation, n=5) and at term (≥ 37 weeks of gestation, n=10). Preterm and term amniotic fluids (AF) (n=200) were collected. Cytokine expression was studied by RT-PCR. ELISA documented culture media and AF cytokine concentrations. Mann-Whitney U test was used for statistical analysis.

RESULTS: IL-24 and IL-29 expressions were seen in cultured fetal membranes regardless of stimulation. Expression was also found in preterm and term labor, but not in non-labor tissue. IL-24 secretion was significantly increased after LPS (p=0.003) and IL-29 after polyIC-stimulation (p=0.025). LPS did not show significant effect on IL-29 production (p=0.764). PolyIC showed no significant effect on the production of IL-24 (p=0.860). AF analysis did not show detectable amounts of the two cytokines in either group.

CONCLUSION: This is the first report of IL-24 and IL-29 expression in human fetal membranes. Expression of the two cytokines in labor tissue but not in non-labor tissue suggests inflammatory pathways as part of both preterm and term labor. The lack of IL-24 and IL-29 in AF, but increase of IL-24 in response to LPS and IL-29 in response to polyIC in *in-vitro* suggests an autocrine immune response.