### DEVELOPMENT OF GUT MICROBIOTA: EFFECT OF ENTERAL FEEDING ON REGIONAL GROWTH OF BIFIDOBACTERIA IN INFANTS EXPOSED TO INTRAPARTUM ANTIBIOTIC PROPHYLAXIS

**Background and aims** Intrapartum antibiotic prophylaxis (IAP) is the most effective strategy to prevent early-onset Group B Streptococcus (GBS) sepsis. A possible role of IAP on neonatal microbiota is assumed. We aimed to evaluate the effect of IAP on the bacterial colonisation of neonatal gut at 7 and 30 days of life (DOL).

**Methods** Term newborns, vaginally delivered, were assigned to 2 DOL and allocated into four groups. Group 1: infants exclusively breastfed, not exposed to IAP. Group 2: infants partially breastfed (receiving at least 50% of own mother’s milk), not exposed to IAP. Group 3: infants exclusively breastfed, exposed to IAP. Group 4: infants partially breastfed, exposed to IAP. Faecal samples from the enrolled infants were collected at 7 and 30 DOL. The count of **Bifidobacterium** spp., assessed by real-time PCR, was compared between the four groups.

**Results** Fifty-five newborns were recruited: 25 in Group 1, 7 in Group 2, 17 in Group 3, 6 in Group 4. On day 7, IAP-exposed newborns showed a significantly lower count of **Bifidobacterium** spp. (p < 0.05). Among infants not exposed to IAP, **Bifidobacterium** spp. count was significantly higher in Group 1 compared to Group 2. On day 30, a significant increase in **Bifidobacterium** spp. count was significantly higher in Group 1 compared to Group 2. On day 30, a significant increase in **Bifidobacterium** spp. count was significantly higher in Group 1 compared to Group 2.

**Conclusions** Early neonatal microbiota is significantly affected by IAP, resulting in a reduced Bifidobacteria colonisation. Breastfeeding promotes the development of bifidogenic flora and possibly contributes to increase **Bifidobacterium** spp. count in IAP-exposed newborns at 30 DOL.

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### THE EFFECT OF ENTERAL FEEDING ON REGIONAL CEREBRAL OXYGEN SATURATION IN PRETERM BORN INFANTS

**Aim** To assess the effect of enteral feeding on regional cerebral oxygen saturation (rSO₂) in preterm infants.

**Methods** This study was part of a larger prospective cohort study. We used near-infrared spectroscopy to measure rSO₂, which is indicative for cerebral perfusion. We measured during two hours on postnatal days 2–5, 8, 15, 22, 29, and 36. Feeding times were manually recorded. We used multi-level analyses to compare preprandial rSO₂ values to postprandial rSO₂ values, both 10–30 min and 30–60 min after feeding.

**Results** We included 29 preterm infants with a median GA of 28 + 1/7 (range 23 + 1/7–30 + 4/7) weeks, and a median birth weight of 1025 (range 580–1495) grams. Compared to preprandial rSO₂ values, we found increased postprandial rSO₂ values 10–30 min after feeding (mean[SD]: from 67%[15] to 71%[13], p = 0.014), and 30–60 min after feeding (mean[SD]: from 67%[15] to 73%[14], p = 0.000) on day 8. We observed a trend of decreased rSO₂ values 30–60 min postprandial compared to baseline.