September 21st, 2023 11:00 - 12:30

PARALLEL SESSION 18 – Perinatal CMV infection

ID 331. To determine whether pregnant women with a history of genital herpes simplex virus (HSV) and their infants are managed according to best practice recommendations

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Introduction

Herpes Simplex Virus (HSV) is a double stranded deoxyribonucleic acid (DNA) virus with 2 serotypes, HSV–1 and HSV–2. Neonatal HSV disease is classified as: 1) disease limited to the skin, eyes, or mouth; 2) central nervous system disease, with or without skin lesions and 3) disseminated disease involving multiple visceral organs. Neonatal HSV infection and disease is largely uncommon due to evidence–based interventions for pregnancy, delivery and the newborn. The aim of the study was to determine whether pregnant women with a history of genital HSV and their newborn are managed according to best practice recommendations.

Methods

Four–year retrospective chart review of pregnancies 01/01/2018 — 31/12/2021 at a large tertiary maternity unit in Dublin Ireland with over 9,000 deliveries per year. Inclusion criteria were women with genital HSV first diagnosed pre–pregnancy or the current pregnancy; women with recurrent lesions in pregnancy and/or women with positive HSV diagnostics.

Results

234 women with 261 pregnancies were identified. The prevalence of genital HSV in this population was 0.007%, incidence 0.003%. Mean maternal age was 32 years (SD =/– 5.2).

110 (42%) pregnancies had visible lesions, 135 (52%) had no lesions, 15 (6%) had a history of HSV but did not declare whether they had any recurrence or not. 2 (0.07%) had primary HSV diagnosed within 6 weeks of delivery. 11 (4.2%) had lesions at labour onset representing recurrence, 7 of these had received prophylaxis.

178 (68%) pregnancies had Aciclovir prophylaxis indicated and prescribed from 32 weeks; prophylaxis was not prescribed in 69 (26%) pregnancies based on low risk category or treatment declined.

14 (5%) infants were identified as high risk and evaluated post–delivery. One with a positive nasal swab was treated for ten days with acyclovir.

Conclusion

Rate of primary genital HSV infection within 6 weeks of delivery was low, there were no cases of primary infection at labour onset. Rate of recurrent lesions in pregnancy was less than 50% with only 4.2% at labour onset. Requirement for infant evaluation was low (5%). There was one case of neonatal infection and no cases of disease identified.

None declared

ID 296. Characterization of the patho-immunology of necrotizing enterocolitis reveals novel therapeutic opportunities

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BACKGROUND: Necrotising enterocolitis (NEC) is a severe, insidious intestinal disease of preterm infants. Despite its pivotal pathogenetic role in NEC, the excessive inflammation that drives NEC remains poorly characterized; consequently, no targeted therapy exists. The interleukin (IL)1 family cytokine IL–37 is one of the rare anti–inflammatory interleukins with broad and powerful properties in inhibiting inflammation.

METHODS: NEC was induced in newborn C57BL/6J and interleukin (IL–) 37–transgenic mouse pups by 3–hourly formula feeding,12–hourly asphyxia and cold stress. Dam–fed littermates served as controls. Intestinal tissues in were collected 1. in mice at the experimental endpoint (up to 72h), 2. from human infants with NEC and appropriate controls, for analysis by either histology, immunohistochemistry, multiplex ELISA, real–time PCR and flow cytometry.

RESULTS: Here we show that human and murine NEC intestines exhibit an unexpected predominance of type 3/TH17 polarization over types 1, 2 and Treg. In murine NEC, pro–inflammatory type 3 NKp46–RORγt+Tbet+ innate lymphoid cells (ILC3) are 7–fold increased, whereas ILC1 and protective NKp46+RORγt+ ILC3 are obliterated. IL–36β/γ:IL–36Ra ratios are increased in human NEC, and both species exhibit dysregulation of intestinal TLR repertoires (TLRs4&8 increased, TLRs5–7&9–12 reduced). The anti–inflammatory cytokine IL–37 protects from intestinal injury, modestly when injected, but potently when transgenically expressed; only the transgene dramatically reduces mortality (–84%). Mechanistically, IL–37 ameliorates imbalances in innate and adaptive immunity, favourably modulates TLR repertoires, and preserves microbial diversity. Importantly, IL–37 and its receptor IL–1R8 are 51% reduced in human NEC epithelia; and at two weeks, when NEC frequently occurs, IL–37 is 78% lower in monocytes from blood of infants with NEC and/or lower birthweight.

CONCLUSIONS: By advancing knowledge on NEC pathomechanisms, we reveal the therapeutic potential of IL–37, type 3 cytokines, TLRs and IL–36, whose exploitation may relieve our young patients' suffering

Monash University, Hudson Institute (J.C.W., M.F.N., C.A.N.–P., and A.M.E.) hold patents on IL–37, PCT/AU2016/050495, PCT/ EP2020/08703. There are no other conflicts of interest to declare.