

P019 Natural Antimicrobial Proteins in the Amnion – Defence against ascending infection?

Sarah Stock¹, Rodney Kelly², Simon Riley³ and Andrew Calder³

¹ Jennifer Brown Clinical Research Fellow, University of Edinburgh; ² Human Reproductive Sciences Unit, MRC;

³ Department of Obstetrics and Gynaecology, University of Edinburgh.

Background: The fetus develops in the amniotic cavity, which is normally sterile. Infectious agents, which may ascend from the vagina, can threaten the well being of the fetus and stimulate premature labour, the major cause of neonatal mortality. The amnion is critically positioned as the last line of defence between the fetus and the septic lower genital tract, yet the innate immune responses of this tissue have been poorly characterized to date.

Methods: Real time quantitative taqman PCR of primary cultured amnion epithelial cells and ELISA of culture media.

Results: Treatment of primary cultured amnion epithelial cells with interleukin 1-beta (IL1 β) 10ng/ml significantly upregulated production of human beta-defensin 2 (HBD2) in a biphasic pattern. It also rapidly stimulated release of IL8, as well as stimulating its own production. Seven other natural antimicrobial proteins were examined (HBD1, HBD3, HBD4, Granulysin, SLPI, LL-37 and ELAFIN) but none were induced by IL1 β treatment.

Conclusion: Amnion epithelial cells respond to IL1 β , a cytokine known to be associated with infection driven preterm labour, with production of HBD2. HBD2 is a potent natural antibiotic, which also interacts with the adaptive immune system. We believe it may have an important role in helping to protect the fetus and preventing infection induced preterm delivery.