m-SeP: Investigation of maternal immunity and testing of physiological and immune-metabolic blood markers for maternal sepsis, designing a new blood test for sepsis.

INTRODUCTION

- Globally pregnancy related infections leading to sepsis are the third most common cause of maternal death.
- Sepsis can lead to morbidity, worse fetal outcomes and maternal death.
- Physiological shifts during pregnancy do not increase the incidence of infection but predispose women to a higher risk of developing sepsis to infection, resulting from a maladapted host response to infection.
- Studies have shown subtle point changes to the immune system during pregnancy. See appendix below: REF: Maternal Sepsis Management.

METHODS-STUDY DESIGN MSEP

- m-SEP: Is an in house collaborative study with Cardiff University and the University Hospital of Wales.
- Maternal Sepsis is a life threatening condition defined as organ dysfunction resulting from infection during pregnancy, childbirth, post-abortion, or the post-partum period.
- The objectives of our study are to evaluate the effectiveness of physiological parameters in predicting maternal sepsis and the effectiveness of alternative biomarkers in diagnosing maternal sepsis, including a genomic sepsis-test. We will also be investigating the systemic immune health of women undergoing an uncomplicated pregnancy and labour.
- The altered physiology of pregnancy makes the signs and symptoms of sepsis less distinctive in the pregnant population. This can lead to both over treatment and late identification of sepsis.
- A review of the literature shows that half of the fatal cases could have been prevented.

ALTERED PHYSIOLOGY IN PREGNANCY

- The study challenges the clinical dogma of immune suppression in pregnancy.
- Evaluating immune set points and cell changes in pregnancy, asking the question if these changes act as a stepping stone to sepsis. See published review article below.

PRELIMINARY FINDINGS (AWAITING CLINICAL)

- A trend with physiological parameters and confirmed histopathological chorioamnionitis.
- The main triggers on the maternal sepsis pathway, that correspond with a positive microbiological finding, seems to be fetal heart rate changes.
- The addition of fetal heart rate as a parameter is a recent change on the local sepsis pathway and is not universal practice throughout the UK.
- This study can lead to changes in service and practice development.

FUTURE DIRECTIONS

- Future Research opportunities.
- Maternal sepsis workshops.
- Future publications.
- Proposed Qualitative sub-project of the study.

References:

- m-SeP: Investigation of maternal immunity and testing of physiological and immune-metabolic blood markers for maternal sepsis, designing a new blood test for sepsis.
- Maternal Sepsis review – in press
- Immune set points and cell changes in pregnancy, asking the question if these changes act as a stepping stone to sepsis. See published review article below.