British Maternal & Fetal Medicine Society   Edinburgh, 15/01/17
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Progress Report for the BMFMS Research Bursary to Dr Holger W Unger

Project title: Anaemia in Papua New Guinea: developing a clinical algorithm to identify women at high risk of anaemia-related adverse pregnancy outcomes for targeted interventions (£4,500).

The overall aim of my project is to test the hypothesis that a clinical algorithm can be developed to identify women at high risk of anaemia-related adverse pregnancy outcomes for targeted interventions. This could be useful in low-resource settings without laboratory support. The study draws on samples and data collected as part of a large randomized clinical trial in Papua New Guinea (PNG) that I supervised and which concluded in 2013.

The BMFMS Research Bursary funds a core component of the study, the measurement of ferritin in antenatal enrolment samples. Following optimisation of our laboratory protocols all enrolment samples have been tested (~2,700 women). As such the laboratory component of the project that was funded by BMFMS is now completed.

Data from previously conducted assays for c-reactive protein (CRP) and α1-acid glycoprotein have been cleaned and pre-analysed. A small number of assay repeats are pending for CRP, and these are targeted for completion by the end of February 2017. CRP data is crucial for the interpretation of the ferritin data generated through the BMFMS grant, and will be fed into the planned analyses.

Furthermore, separate research funding has been secured to evaluate folate levels in the cohort. Folate deficiency may be another important cause of anaemia in PNG. Folate levels are currently being evaluated.

The following timetable for our project aims is anticipated:

1) The assessment of the prevalence of iron deficiency in pregnant PNG women, its relationship with anaemia, and the association between iron deficiency and pregnancy outcomes will be completed by July 2017. Preliminary analysis suggests a high burden of iron deficiency anaemia with ~58% of the population having both iron deficiency (ferritin <30ug/L) and anaemia (Hb<11g/dl) at 14-26 gestational weeks.

2) Modelling the role of simple clinical factors, such as mid-upper arm circumference and gravidity, to identify women most at need of treatment for iron deficiency will be completed in October 2017.

3) Structural equation modelling of the relative contribution of iron (and folate) deficiency to anaemia and LBW, adjusting for other risk factors such as malaria, sexually transmitted infections, inflammation, and poor macro-nutritional status will be completed in Spring 2018.

BMFMS will be provided with any publications arising from this project.