Tuesday April 20

Session Co-Chairs: Aleisha Moore and Allan Herbison

5:40 pm Maria Phylactou (Imperial College London)

5:50 pm Inmaculada Velasco Aguayo (IMIBIC)

6:00 pm Eliana Aerts (West Virginia University)

6:10 pm Silvia Leon (Harvard Medical School/Brigham & Women's Hospital)

6:20 pm Margaret Mohr (UCLA**)**

6:30 pm Nimisha Nandankar (Rutgers University)

6:40 pm Teresa Chou (University of California, San Diego)

6:50 pm Thatiane Ramalho (UFMG)

(all times EDT [New York time])

PERFORMANCE OF PLASMA KISSPEPTIN AS A BIOMARKER FOR MISCARRIAGE IMPROVES WITH GESTATION DURING THE FIRST TRIMESTER

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Context: Miscarriage is the commonest pregnancy complication, but there are currently no biomarkers in clinical use to predict pregnancy loss. Kisspeptin is highly expressed in placental syncytiotrophoblasts and has emerged as a putative regulator of placentation. Preliminary data suggest that circulating kisspeptin levels are reduced in women with miscarriage, but its discriminatory performance at different gestations during the first trimester has not been assessed.

Objective: Compare the performance of kisspeptin and beta human chorionic gonadotropin (βhCG), both alone and in combination, as biomarkers for miscarriage throughout the first trimester.

Methods: Women with confirmed intrauterine pregnancy underwent serial ultrasound scans and blood sampling every 1-2 weeks during the first trimester. The ability of plasma kisspeptin and βhCG levels to distinguish healthy asymptomatic pregnancies (n=265; 557 samples) from those with miscarriage (n=95; 173 samples) was assessed.

Results: Gestation-adjusted circulating kisspeptin and βhCG levels were lower, by 79% and 70% respectively, in samples from women with miscarriage than healthy pregnancies (P <0.0001). The area under the ROC curve for identifying miscarriage during the first trimester was: kisspeptin 0.874 (95%CI 0.844-0.904), βhCG 0.859 (95%CI 0.820-0.899), and for the sum of both markers 0.916 (95%CI 0.886-0.946). The performance of kisspeptin to identify miscarriage improved with increasing first trimester gestational week, whereas that of βhCG worsened. The odds of miscarriage decreased by 35% for every 100 pmol/L increase in plasma kisspeptin during the first trimester (95% CI 32% - 38%) (P<0.0001). Gestation-adjusted kisspeptin and βhCG levels were even lower in samples taken with closer proximity to the day of miscarriage. A decision tree model incorporating kisspeptin, βhCG and gestational age had 83-87% accuracy for the prediction of miscarriage.

Conclusion: Plasma kisspeptin is a promising biomarker for miscarriage and provides additional predictive value to βhCG alone, especially at later first trimester gestations.