Predictive factors of hypertensive disorders during pregnancy in colombian pregnant women

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Objective
Hypertensive disorders of pregnancy (HDP) are a common cause of maternal and perinatal morbidity and mortality. Preeclampsia (PE) affects about 2-3% of all pregnancies in developed countries and is associated with maternal death in over 10% of the cases. In Colombia, the prevalence of PE is estimated to be of 6-8% and PE is the first cause of maternal mortality. There are no obvious reasons for the recognised high prevalence of PE in Colombia and a high risk of PE has been acknowledge in Colombian women who live abroad. In the Colombian population risk assessment for HDP is currently undertaken by using demographic maternal factors and, only rarely, in cases with a previous history of PE, by the measurement of the pulsatility index of uterine arteries (UtPI) in the first trimester. Most of the authors have concluded that any alone factor can not be predictive for PE and many variables are needed to get an accurate model that can identify women at risk that would most benefit from the only strategy that has been proven useful: acetylsalicylic acid. The aim of this work was to determinate which factors are the most important to predict HDP in Colombian women.

Methods
This an on-going Multicentre protocol at Bogotá D.C. and this is an approaching prospective observational study of pregnant women recruited from November 2014 to March 2017 at their first prenatal visit between 11 and 13 weeks’ gestation. Maternal and history characteristics used were age, racial origin, socioeconomic level, smoking, chronic diseases, personal and familiar history of PE or fetal growth restriction (FGR) and obstetric history. Uterine artery pulsatility index, mean arterial pressure (MAP) and maternal serum biochemical markers (pregnancy-associated plasma protein-A (PAPP-A), and placental growth factor (PIGF) were obtained. Variables at 11–13 weeks were selected to create logistic regression models by backward stepwise analysis in order to determine prediction of HDP: gestational Hypertension (GH), severe PE and non-severe PE, and to approximate which factors are better in the prediction of these diseases.

Results
In this on-going study, there are 336 pregnant women with maternal and perinatal complete outcomes. Of these patients, 13 were lost to follow-up. In the study population, 34 (10.5%) pregnant women developed a HDP: 22 (65%) had PE and 12 (35%) had GH. PE was classified as early and late by time of appearance (before or after 34 weeks of pregnancy) and by its severity. The cases of PE included 13 (59%) with severe and 9 (41%) with non-severe features; 5 were early-PE and 17 cases were late-PE. The mean maternal age was 27 years and 76 (23%) were nulliparous. In multiparous, 117 (36%) had a new partner and 130 (40%) had the same partner. At first visit, mean body mass index (BMI) was 24 (range 16 -40) and MAP was 80 mmHg (range 63 -104). More than 99% of women were mestizo ethnicity. For the family history, 60 women (18%) had a sister or mother with history of PE and 20 (6%) had sister or mother with a baby with FGR. Sixteen (6.5%) of the multiparous had PE in a prior pregnancy and seven (2.8%) had a baby affected by FGR. Ten women had a chronic disease, the most frequent being chronic hypertension found in 6 cases (1.9%). Mean gestational age at recruitment was 12 weeks and 5 days and mean gestational age at delivery was 38 weeks and 2 days. The principal factor that was found significant was PIGF. Other factors like personal and family history, MAP and PAPP-A were also found useful. UtPI was useful for the prediction of GH whereas chronic hypertension was useful in the prediction of severe PE.

Conclusion
Colombian women have an higher incidence of hypertensive disorders in pregnancy than those in developed countries. Combining maternal history and different risk factors related to hypertensive disorders in pregnancy (BMI, MAP, UtPI and PAPP-A and PIGF) in the first trimester in Colombian pregnant women shows similar result for prediction of HDP as in
other world countries were this models have been applied.