First trimester screening test for preeclampsia and premature delivery
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Objective
To assess the feasibility of a systematic Preeclampsia and Preterm Delivery screening program, tried and tested in other populations around the world, resulting in a considering reduction on maternal, fetal and perinatal morbidity and mortality. This program will be applied in our population of pregnant women during the first trimester of pregnancy, based on the guidelines for the First Trimester screening test by the Fetal Medicine Foundation in London, England, when the fetus’ CRL measures between 45 to 84 mm.

Methods
This is a longitudinal, prospective study. A general practitioner with basic knowledge in ultrasound was trained on the first trimester screening test for Preeclampsia and Preterm Delivery. A Fetal Medicine Doctor from the Fetal Medicine Foundation will do this training and the objective is that the Fetal Medicine Foundation as well certifies the General Practitioner. The risk of Preeclampsia will be calculated as well as any possible risk for Preterm Delivery. These risks are calculated through the parameters outlined by the Fetal Medicine Foundation in relation to the clinical history and biophysical markers of the mother; specifically for the calculation of preeclampsia the average of Pulsatility Index from both uterine arteries is used; and for calculating the risk of preterm delivery the measurement of cervical length was performed. Positive Screening for Preeclampsia is define as a risk greater or equal to 1/100 regardless of whether the type of preeclampsia in question, namely early preeclampsia, middle and/or late; Positive Screening for Preterm Delivery is defined as a risk is greater than or equal to 1/100. In the low risk population we continue monitoring fetuses at 2nd. and 3rd. Trimester, in order to start introduce the Inverted Pyramid of Prenatal Care by Prof. Kypros Nicolaides, in our population. In patients with a positive screening for Preeclampsia, we began acetylsalicylic acid (aspirin 100 mg daily protective, BAYER Mexico) from the same day of the high risk result and until the 32 weeks of gestation; in the case of a positive screening test for Preterm Delivery we indicated Progesterone (Any brand, similar except) 200 mg vaginally daily starting from the day when we got the high risk and until 34 weeks. We follow up the patients with a high risk of Preeclampsia at 20, 28, 32 and 36 weeks of gestation, measuring the uterine arteries Doppler and looking for IUGR. We follow up the patients with a high risk of Preterm delivery at 20 and 32 weeks of gestation, measuring the cervical length.

Results
We analyse the results obtained during three months working in the city of Purisima del Rincon of the Sanitary District VIII of the State of Guanajuato, in the period from 1st of October to December 31, 2013, by screening a total of 55 patients. The results of this first phase are presented. We divided Maternal ages arbitrarily into two groups: Under 20 years corresponding to 36.4% (20 patients) and older than 20 years at 63.6% (35 patients). In 34 patients (61.8 %) screening test was positive for any disease. There were no patients who had positive screening for both pathologies. With respect to Preeclampsia, the screening test was positive in 5 patients (31%), while 50 of them (69%) screening was negative. In positive cases for Preeclampsia acetylsalicylic acid 100 mg daily was prescribed, starting the day of the screening and until 34 weeks of gestation. The risk of prematurity was positive in 29 patients (52.7 %) and negative in 26 of them (47.3 %). In patients with positive screening for vaginal progesterone Prematurity, 200 mg daily (from the day of screening and until the 34th week of gestation) was prescribed. The outcome of the pregnancy was documented in only 26 of the 55 patients (47.3%). Of these, 15 (57.7%) were resolved by vaginal delivery, 8 (30.8%) by caesarean section, whereas 2 (7.7%) of the resolutions of pregnancy were categorized as dystocia by use of forceps; finally only one patient (3.8%) had abortion. New-borns weights ranged between 2700-3850 grams. Of the 26 infants, only 1 (3.8%) had complications from perinatal asphyxia and had to be admitted to the NIUC for 4 days. The remaining 25 infants (96.2%) were born healthy, full-term, between 38 and 41 weeks gestation, with no new-born, maternal or perinatal complications. None of the cases of High Risk for Preeclampsia developed the condition, likewise, none of the cases at risk for preterm birth born before the 38th week of pregnancy.

Conclusion
We believe that this pilot program allows us to confirm that the application of the ‘inverted pyramid for prenatal care’ model proposed by Professor Kypros Nicolaides, is possible in a population that never had access to a screening before in the first trimester of pregnancy. Also, we consider that this is the tool that would enable us, not only Mexico but Latin America, to achieve the Goals 4th. and 5th. Identified by the WHO in 2000. On the other hand, contrary to expectations, patients are enthusiastic with the study of the first trimester screening test, breaking the paradigm that in our Mexican population it would be impossible to get the Patients to come to its first assessment of pregnancy in the first trimester of it. The results are encouraging because, despite being a small town in a pilot study, in a very short time, it was possible to predict and prevent the presence of preeclampsia and preterm delivery at least 100% of the patients in whom we were able to meet the pregnancy outcomes. We need to implement strategies that improve the monitoring system of patient’s outcomes. It is imperative to continue with further studies in a bigger population of pregnant women that allow us to adjust risks estimates for preeclampsia and preterm delivery in our specific population.