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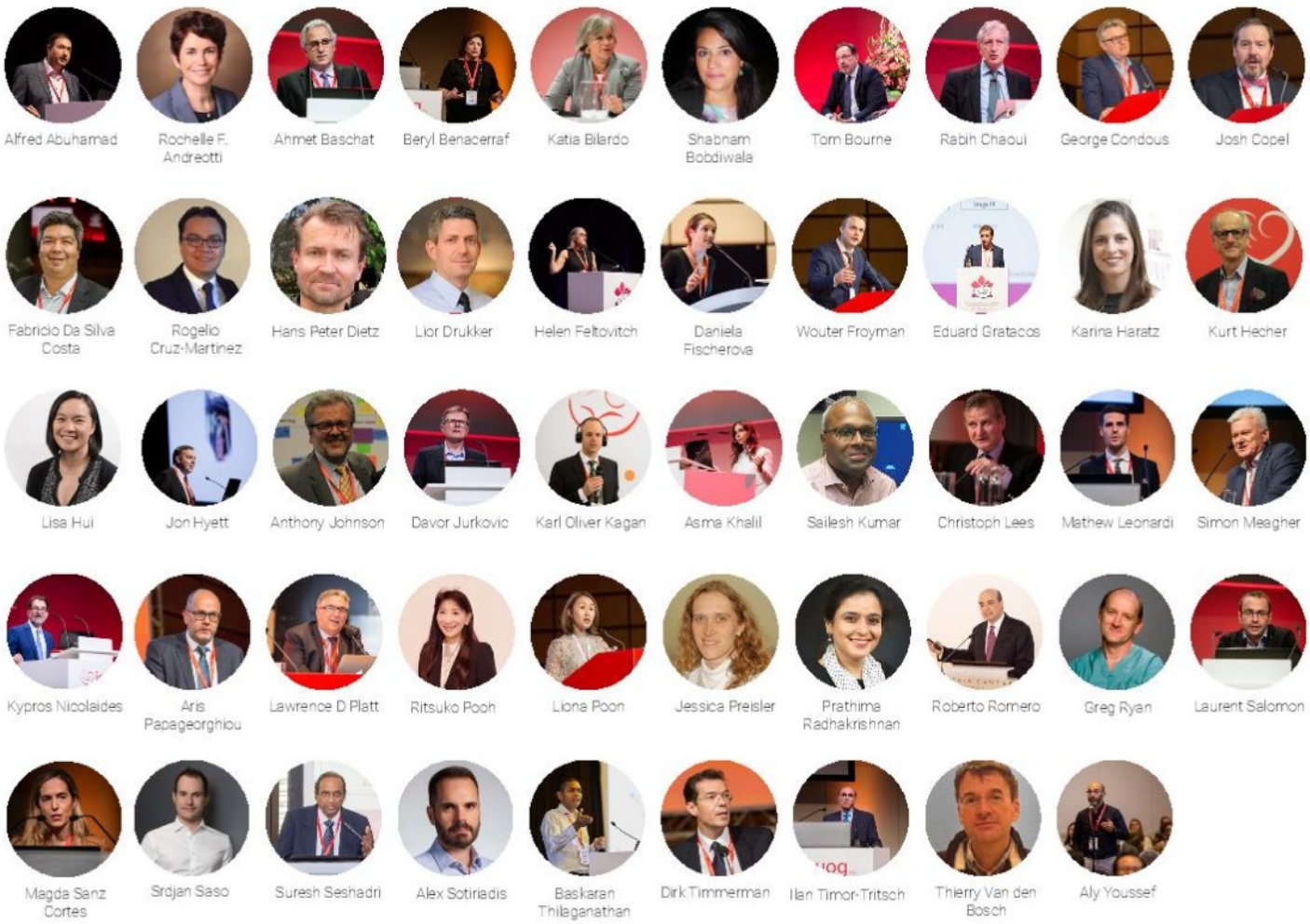

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VP50.14
Performance of Fetal Medicine Foundation algorithm for first trimester pre-eclampsia screening in an indigenous South Asian population: an observational study

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Objectives: To assess the performance of the Fetal Medicine Foundation (FMF) algorithm for screening for preterm pre-eclampsia (PE) in an indigenous South Asian population.

Methods: This was a observational cohort study conducted between June 2015 and June 2018 in Delhi, India. 1863 South Asian women having a singleton pregnancy were screened for preterm PE using mean arterial pressure (MAP), transvaginal mean uterine artery pulsatility index (UtAPI), pregnancy associated plasma protein-A (PAPP-A) and placental growth factor between 11 to 14 weeks of gestation. MAP and UtAPI were measured in accordance with the FMF protocol by FMF certified sonographers. Measurements were converted to multiples of the expected gestational median (MoMS) and used to determine risk for preterm PE<37 weeks using Astraia software. Preterm PE risk of ≥1:100 was regarded as high risk. The predictive performance of the algorithm was evaluated. Detection rates (DR) at 10% false-positive rate were estimated after adjusting for prophylactic aspirin use (75 or 150 mg).

Results: The incidence of PE and preterm PE were 3.17% (59/1863) and 1.34% (25/1863) respectively. PAPP-A and PlGF MoM distribution medians were 0.86 and 0.87 MoM and significantly deviated from 1 MoM. 421 (23.1%) women had a risk of ≥1:100, 75 (17.8%) of who received aspirin. Unadjusted DR using ≥1:100 threshold was 76%. Estimated DRs for a fixed 10% FPR ranged from 52.5% to 80% depending on biomarker combination after recentering MoMs and adjusting for aspirin use.

Conclusions: The FMF algorithm whilst performing satisfactorily could still be further improved to ensure that biophysical and biochemical markers are correctly adjusted for indigenous South Asian women.

VP50.15
Prediction of pre-eclampsia in twins' pregnancies in ICSI patients using 3D vaginal power Doppler at blastocyst stage embryo transfer

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Objectives: To test whether obstetrical complications mainly pre-eclamspia could be predicted by 3D vaginal power Doppler assessing endometrial and myometrial vascularity on day 5 of embryo transfer in dichorial diamniotic twins after ICSI procedures.

Methods: This is a prospective observational study, where 53 twins' pregnancies are included after intracytoplasmic sperm injection (ICSI) procedure at Al Hadi IVF Centre from January 2018 till December 2019. At the day of embryo transfer (day 5), 3D vaginal power Doppler is used to calculate endometrial and myometrial vascularity indices: vascular index (VI), flow index (FI) and vascular flow index (VFI). These indices are calculated by a specific developed software (VOCAL). All patients were regularly followed, all complications were regularly recorded. Gestational age and fetal weight were recorded at delivery.

Results: Out of the 53 patients included, 5.7% had pre-eclampsia, 11.1% were born before their 28th week. Concerning weight percentile 37.8% had a weight percentile less than 10th percentile. Among the tested parameters the following were significant: the p value for myometrial VI, FI and VFI in a logistic regression model predicting pre-eclampsia were 0.046, 0.019 and 0.037 respectively. Additionally, the area under the curve model for vascular flow index in the prediction of pre-eclampsia was 0.971. At delivery, when dividing gestational age between 3 groups: less than 28 weeks, between 28 and 34 weeks, and after 34 weeks, myometrial FI had a p-value of 0.007. Also, myometrial VFI had a p value of 0.007 when dividing weight percentile into 3 groups at delivery: less than 10 percentiles, between 10 and 90 percentile and more than 90 percentiles.

Conclusions: In conclusion, pre-eclampsia could be predicted by myometrial vascularity indices. Moreover, myometrial vascularity presented in FI and VFI had also a significant correlation with gestational age and weight percentile at delivery.

VP50.16
Abstract withdrawn

VP50.17
Use of index uterine arteries/middle cerebral artery as a predictor of pre-eclampsia

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Objectives: We present preliminary findings from a subsample of 316 pregnant women evaluated in the 20-week morphological ultrasound. A Doppler was performed, evaluating the mean IP index of uterine arteries/ IP of the middle cerebral artery, and it was related to the appearance of pre-eclampsia later.

Methods: Out of a planned sample size of approximately 600 pregnant women, pregnant women are evaluated at the morphological ultrasound visit. Follow-up is performed until the immediate postpartum to assess the presence of pre-eclampsia.

Results: Pregnant patients were aged 31.1 ± 5.7 years and had a mead BMI of 26.1 ± 5.4. The average parity was 1.1 ± 3.4. The mean IP index of uterine arteries/IP of middle cerebral artery was 0.5 ± 0.2 in all women and 0.9 ± 0.2 in pregnant with pre-eclampsia (p = 0.01). We found no difference in fetal weight.

Conclusions: The use of the mean IP index of uterine arteries/IP of middle cerebral artery could be a good predictor of the appearance of pre-eclampsia.

VP50.18
Abstract withdrawn

VP50.19
Pre-eclampsia and screening of the first trimister: results of the five-year experience of a single centre and future prospects

S. Capriglione[1], F. Gulino[2], S. Latella[1], G. De Felice[1], M. Filippini[1], C. Ettore[2], G. Ettore[2], M. Farinelli[1], E. Viora[3]

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Objectives: The aim of this prospective study is to evaluate the ability to define the risk of developing pre-eclampsia by a screening test carried out in the 1st trimester (between 11 + 0 and 13 + 6 weeks

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of gestational age) and to define its ability to predict the risk of developing adverse obstetric outcomes and evaluate the fetal DNA fraction in these cases.

Methods: This was a single centre study, conducted at the Operative Unit of Obstetrics of the State Hospital of the Republic of San Marino. The collection of clinical-anamnestic data was performed at the time of enrolment on a paper. Subsequently, obstetric outcomes were collected for each enrolled woman, through the analysis of medical records.

Results: From October 2014 to May 2019, 589 pregnant women were recruited, of whom, 474 (80.5%) were included in the "low risk" category, and 115 (19.5%) in the "high risk" category (figure 1). The PI of the uterine arteries was not significantly different between the two study groups. Otherwise, a significant difference has been highlighted with regard to PAM, which is higher in the case of pregnancies at high risk based on the risk factors only, and for PAPP-A, higher in the case of low risk pregnancies (table 1). Regarding the percentage of fetal DNA, according to the most recent literature data, in our series we report a statistically significant difference of the average between the low and high risk groups.

Conclusions: Data from our study areinteresting must be considered as a preliminary analysis, since the enrolment is still in progress. Larger studies are needed to assess the predictivity of thismultiparametric test and to evaluate whether the addition of fetal DNA may have useful implication in clinical practice.

Supporting information can be found in the online version of this abstract

VP50.20

Second and third trimester serum levels of HtrA1 in the prediction of pre-eclampsia

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Objectives: Altered placental expression of high temperature requirement factor A1 (HtrA1) is implicated in abnormal trophoblastic invasion and endothelial dysfunction in pre-eclampsia (PE). Serum HtrA1 is proposed as a novel biomarker to improve prediction of PE. We aimed to assess serum HtrA1 levels in women who later developed PE compared to controls.

Methods: This is a case-control study of second and third trimester serum HtrA1 levels in women who later developed preterm and term PE compared to controls. 300 samples were drawn from a prospective observational study of adverse pregnancy outcomes at the Fetal Medicine Research Institute, King's College Hospital, London. HtrA1 levels were determined by enzyme-linked immunosorbent assay (ELISA) by blinded laboratory professionals. HtrA1 values, adjusted for gestational age and maternal characteristics, were compared at each gestational age using one-way analysis of variance (ANOVA), with Dunnett's post-hoc analysis.

Results: Women who later developed PE had significantly higher maternal weight and more frequently had PE in a previous pregnancy and chronic hypertension compared to controls. Serum HtrA1 was detectable in the second and third trimesters and increased with increasing gestation in normotensive pregnancies. In PE pregnancies, HtrA1 levels were not significantly different from controls at any gestation (table 1).

Conclusions: HtrA1 levels show high variability throughout gestation in all pregnancies and are no different in women who later developed PE compared to controls.

VP50.20: Table 1. Second and third trimester serum HtrA1 levels

	HtrA1 (ng/μL), Median (IQR)	P value
19 – 24 weeks		
Control (n = 60)	39.4 (28.2 – 75.9)	
Preterm PE (n = 30)	43.3 (18.2 – 89.1)	0.66
Term PE (n = 30)	48.4 (36.1 – 123.5)	0.09
30 – 34 weeks		
Control (n = 60)	68.5 (44.0 – 118.5)	
Preterm PE (n = 30)	70.7 (51.5 – 87.2)	0.14
Term PE (n = 30)	61.5 (45.2 – 88.1)	0.69
35 – 37 weeks		
Control (n = 40)	71.6 (49.5 – 125.8)	
Term PE (n = 20)	78.1 (60.0 – 96.4)	0.55

VP50.21

Hypertensive disorders of pregnancy with fetal growth restriction: a condition of severe placental oxidative stress

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Objectives: Hypertensive disorders of pregnancy (HDP) are still the major cause of maternal and perinatal morbidity and mortality worldwide. They are closely associated with placental oxidative stress (POS) that can result in fetal growth restriction (FGR). Altered angiogenic biomarkers (i.e. increased sFlt-1/PlGF ratio) are indicative of POS. Among HDP, pre-eclampsia (PE) is the most severe form. To date there is no universal definition of PE; some guidelines include a list of maternal complications and not only proteinuria to make the diagnosis, other include also FGR. The objective of our study is to evaluate the POS considering angiogenic factors in HDP associated or not with FGR in relation of obstetric outcomes.

Methods: A retrospective analysis was performed at the Units of Obstetrics and Gynecology at the San Gerardo Maternity in Monza and the Mangiagalli Maternity Unit at the Polyclinic of Milan, Italy, between May 2018 and January 2020. All women with singleton pregnancy admitted for HDP at the High-Risk Unit, after the 20th week of gestation, were recruited for the study. The sFlt-1/PlGF ratio was classified according to the following four classes of ratios, with respect to the 34th gestational week (low <38, medium 38-85/110, high >85 or >110 and very high >655 or >201). In case of multiple dosages, the last one before delivery was considered. FGR was defined according to the consensus definition with a Delphi procedure.

Results: A total of 132 women were included. 50 cases of HDP were associated with FGR (38%). Mean sFlt-1/PlGF ratio wase significantly higher in women with FGR than in patients without (414 ± 283 and 110 ± 160 respectively, $p < 0.001$). No cases of HDP-FGR presented a low ratio level, 88% had a high/very-high sFlt-1/PlGF ratio. HDP-FGR had also a significantly lower gestational age at delivery ($p < 0.0001$), and higher rate of Caesarean section (74%, $p = 0.001$).

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