mfine /diagnostics

Need of the
HOUR

A Comprehensive
SCREENING TEST
To Reliably Assess The Preeclampsia Risk

PREECLAMPSIA
SCREENING

SCREEN EARLY, ACT SOONER!

Preeclampsia

One of the leading causes of maternal and perinatal morbidity and mortality

- Globally 76,000 women and 500,000 babies die each year from Preeclampsia
- 8-10% Prevalence of Preeclampsia in Indian Women
- Prevention by Early Intervention Saves Money and Saves Lives!

Early screening & the right intervention can help protect the baby's & mother's health.

Biomarkers offer a reliable & assured way to know the preeclampsia risk.

What Can **Biomarkers Tell Us?**

An imbalance between angiogenic (PlGF and VEGF) and anti-angiogenic factors (sFlt1) released from placenta.

Placental growth factor (PlGF)

Role: Involved in placental angiogenesis. PlGF levels reach the peak around 26 to 30 weeks of gestation period.

Indication: Low PlGF levels can be indicative of placental dysfunction, hence, preeclampsia.

Soluble FMS-like tyrosine kinase-1 (sFlt-1)

Role: Disables proteins, such as PlGF, which are associated with angiogenesis or blood vessel formation.

Indication: Levels of sFlt-1 are usually higher in women who develop preeclampsia than those in normal pregnancy.

These biomarkers coupled with clinical judgement & other diagnostic tests can help in the confirmed diagnosis of preeclampsia.

MFine/diagnostics Offers

EARLY-ONSET & LATE-ONSET PREECLAMPSIA SCREENING

How Does **First Trimester Preeclampsia Screening Work?**

Early-onset preeclampsia (before 34 weeks' gestation) is usually associated with placental dysfunction.

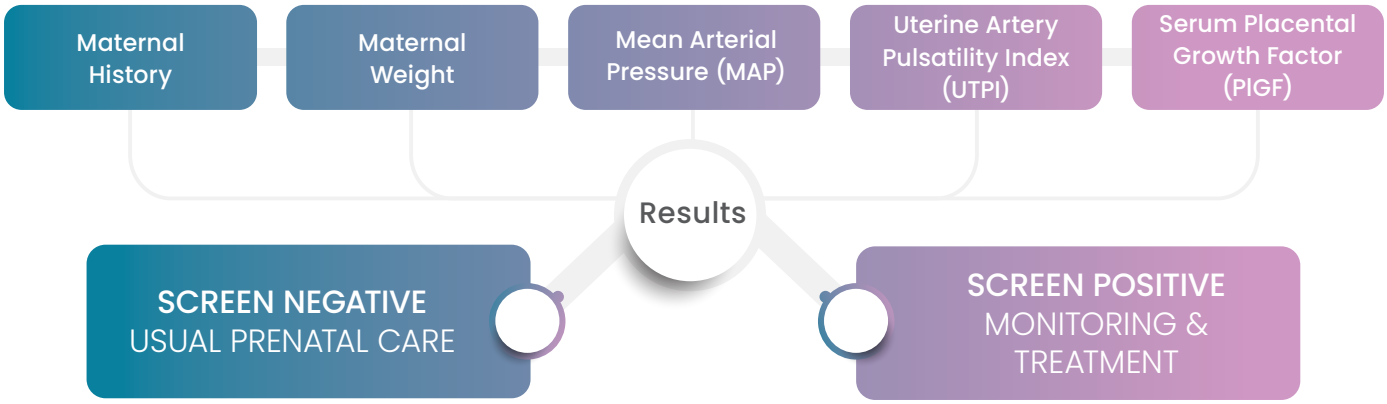
The efficacy of screening for **Preeclampsia at 11-13 weeks' gestation using the FMF algorithm of the combination of maternal factors, Mean Arterial Pressure (MAP), Uterine Artery Pulsatility Index (UTPI) and PlGF** is by far superior to all the other methods of screening.

Detection Rate

Risk cut-off - 1 in 100 and false positive rate(FPR) - 10% *[Ref: O'Gorman et al, Ultrasound Obstet Gynecol, 2017]*

Preeclampsia Risk **Assessment Algorithm**

MFine/diagnostics uses **FMF Accredited Platform to provide accurate results**



Early **Screening Enables:**

- Risk Stratification
- Timely clinical intervention like administration of Aspirin prophylaxis
- Significant Reduction in manifestations of Preeclampsia
- Preemptive reduction in preterm birth, IUGR, severe complications and mortality
- Optimization of calcium intake
- Regular growth scans

Why Is Low Dose Of Aspirin Effective **In Reducing Early-onset Preeclampsia Risk?**

Prophylactic use of aspirin in women at increased risk of preeclampsia dramatically reduces the risk of preeclampsia in pregnant women if the optimal dosage of aspirin is administered during the first trimester of pregnancy. *[Daniel L. Rolnik et. al. , N Engl J Med 2017; Daniel L. Rolnik et. al.,Ultrasound Obstet Gynecol,2017]*

ACOG and SMFM recommend low-dose aspirin prophylaxis for the prevention of Preeclampsia in pregnancies at high risk of preeclampsia.

Can Aspirin be offered **to all Pregnant Women?**

- Although considered as safe, Aspirin is a drug with known side effects
- Better compliance with aspirin prophylaxis achieved when woman is screened and knows the necessity for high compliance
- Combined screening with maternal factors, mean arterial pressure, uterine artery Doppler, and serum PlGF for early prediction of preeclampsia has the capability in identifying a group of high-risk women who are most responsive to aspirin prophylaxis for the prevention of preterm preeclampsia. *[Rolnik DL, Nicolaides KH, Poon LC. Prevention of preeclampsia with aspirin. Am J Obstet Gynecol. 2022]*

How Does Short-term Prediction Of **Preeclampsia Work after 20 weeks of Gestation?**

The clinical presentation of preeclampsia and subsequent clinical course of the disease can vary tremendously, making prediction, diagnosis and assessment of disease progression difficult.

• Angiogenic factors (sFlt-1 and PlGF) are proven to play an important role in the pathogenesis of preeclampsia. *[Hélène Caillon et. al., 2018]*

• Roche Cobas Elecsys sFlt-1 and PlGF immunoassays for sFlt-1/PlGF ratio is a CE marked reliable tool for preeclampsia prediction.

• It helps to identify the patients that are at high risk to develop preeclampsia requiring a closer monitoring and to confidently send home patients that are not likely to develop the disease.

Comprehensive MFine/diagnostics Preeclampsia Screening Packages

Test Package Name	Gestational Age	Biochemical Markers
First Trimester Double Marker with PlGF (Auto-DELFIA®)	11-13 weeks 6 Days	Free Beta-hCG, PAPP-A, PlGF
First Trimester Quad (Auto-DELFIA®)	11-13 weeks 6 Days	Free Beta-hCG, PAPP-A Alpha-fetoprotein, PlGF
First Trimester Penta Marker (Auto-DELFIA®)	11-13 weeks 6 Days	Free Beta-hCG, PaPP-A, Dimeric Inhibin A, Alpha-feto-protein, PlGF
sFlt-1/PlGF ratio (short-term prediction of Preeclampsia with CE-IVD approved Roche Cobas Elecsys® sFlt-1 and PlGF immunoassays)	22-36 weeks 6 days	sFlt-1 /PlGF: with NPV of >99%, rules out onset of PE within next 1 week. Influences clinical decision-making w.r.t. patient triaging & hospitalization.

FIGO CALLS FOR UNIVERSAL SCREENING FOR PREECLAMPSIA

"All pregnant women should be screened for preterm PE during early pregnancy by the first trimester combined test with maternal risk factors and biomarkers as a one step procedure"

First-trimester Preeclampsia (PE) screening: **Use of PlGF vs. PAPP-A?**

The predictive performance of first trimester PlGF for preterm-PE is found superior to that of PAPP-A in a latest study of 25,226 women.

Ref: Wright D, Tan MY, O'Gorman N, Syngelaki A, Nicolaides KH. Serum PlGF compared with PAPP-A in first trimester screening for preterm pre-eclampsia: Adjusting for the effect of aspirin treatment. BJOG. 2022.

Another study of 60,875 singleton pregnancies showed that the performance of first-trimester screening for PE by a combination of maternal factors, MAP, UAPI and PlGF is superior to that of screening by maternal factors, MAP, UAPI and PAPP-A. In first-trimester screening for PE, the preferred biochemical marker is PlGF rather than PAPP-A.

Ref: Mazer Zumaeta A, Wright A, Syngelaki A, Maritsa VA, Da Silva AB, Nicolaides KH. Screening for pre-eclampsia at 11-13 weeks' gestation: use of pregnancy-associated plasma protein-A, placental growth factor or both. Ultrasound Obstet Gynecol. 2020.