SUMMARY

Preeclampsia is a multi system disorder specific for pregnant women. It remains one of the most important causes of maternal and fetal mortality in developed countries.

The discovery of fetal DNA in maternal plasma has suggested new possibilities for non-invasive prenatal diagnosis.

Previous studies have shown that women with established preeclampsia have a five-fold increase in circulating fetal DNA concentration in their plasma as compared to control subjects.

In this study we aimed to test whether the abnormal increase in circulating fetal DNA concentration can be detected in susceptible subjects before onset of the clinical disease and so, whether it can be used as a predictor marker for preeclampsia.

Pregnant women attending Obstetric and Gynecology Department, Benha University Hospital were recruited. Only singleton pregnancies were included. The gestational ages and fetal sex of all studied subjects were confirmed by early ultrasound examination. Blood sample was collected from each subject between 12 and 28 weeks of gestation and placed immediately into EDTA tubes. After centrifugation at 3500 rpm, plasma samples were collected and stored at – 70^{o}C until further processing. All subjects were followed until delivery, and relevant clinical information was recorded.

Of those who carried male fetuses and had blood sampled,

- Sixteen subject subsequently developed preeclampsia.
- Another thirty-six subjects who carried male fetus were randomly selected as a positive control group.
- Samples from nine pregnant women carrying female fetuses were selected as a negative control groups.

Plasma samples from all groups were assayed for total circulating free DNA concentration in extracted samples using the UV spectrophotometer (absorbance at 260 nm).

Also, circulating free fetal DNA was assayed by using the SRY gene on Y-chromosome as a marker for fetal DNA in PCR and β-globin gene as an internal control for amplification of plasma extracted DNA.

Our results suggested that there were significant increases in both circulating free total and fetal DNA in plasma of preeclamptic patients prior the onset of clinical symptoms and signs. And these increases correlated positively with the severity of the developed PE.

The potential clinical implication of our findings demonstrated is that maternal plasma fetal DNA might be used as marker for predicting preeclampsia.