SERUM LEVELS OF SOLUBLE FMS –LIKE TYROSINE KINASE -1 IN PRE-ECLAMPTIC AND ECLAMPTIC CASES AND ITS CORRELATION TO FETOMATERNAL OUTCOME

Tarek Abd el Zaher Karkour, Tamer Mamdouh Abdeldayem, Hesham Adel El Fazary, Raghda Saad Zaghloul Ahmed,* Merihan Mohammed Mahmoud Ahmed Khalil

Department of Obstetrics and Gynecology, Shatby Maternity Hospital, Department of Clinical and Chemical Pathology,* Faculty of Medicine, Alexandria University, Egypt

INTRODUCTION

Preeclampsia is a multisystem progressive disorder characterized by the new onset of hypertension and proteinuria or the new onset of hypertension and significant end-organ dysfunction with or without proteinuria after 20 weeks of gestation or postpartum in previously normotensive women. It is develops due to placental and maternal vascular dysfunction and disappears after delivery gradually by time. The incidence is estimated to be between 3 and 10% of all pregnancies.

Maternal endothelial dysfunction which leads to pre-eclamptic signs and symptoms is induced by high levels of the antiangiogenic factor sFLT1, which is produced in the placenta and released into the maternal circulation. sFLT1 is a soluble splice variant of the membrane-bound receptor VEGFR1 that binds to the proangiogenic proteins VEGF and placental growth factor (PlGF); therefore, sFLT1 acts as a ligand trap and antagonizes ligand-mediated angiogenic signalling via the cell surface receptors.

AIM OF THE WORK

The aim of this work was to evaluate serum levels of soluble fms-like tyrosine kinase-1 (sFlt-1) in cases of severe preeclampsia and eclamptic fits,and to correlate serum levels of soluble fms-like tyrosine kinase-1 (sFlt-1) in these cases to outcome of fetus and mother and incidence of complication.

SUBJECTS AND METHODS

Patients: This prospective cohort study was conducted on 70 patients with severe preeclampsia and eclamptic fits diagnosed by clinical findings, laboratory investigations and ultrasonography admitted at Shatby university hospital in the period from July 2019 to august 2020. They were classified into two groups:

Group A (35 cases) with severe preeclampsia.

Group B (35 cases) with eclamptic fits.

Methods: All cases were subjected to the following:

1. Complete history taking (gynecological, obstetric, medical and surgical).
2. Complete general examination, abdominal and *pelvic* examination (*as possible*).
3. Laboratory investigations including: -

Complete Blood Count: was performed on 3-part differential automated hematology analyzer Sysmex XP-300 (Sysmex, Japan)

Renal Function Tests and Liver Function Tests were measured using fully automated chemistry analyzer Dimension RxL Max (Siemens, Germany).

4. Sflt1 marker measurement : measured using ELISA STAT FAX 2100 READER .
5. Management and follow up till delivery with recording of:

A- Mode of delivery.

B- Maternal outcome:

* Maternal morbidity e.g. HELLP, eclamptic fits, admission to intensive care unit (ICU), renal failure, intracranial hemorrhage or heart failure.
* Maternal mortality.

C- Fetal outcome:

* Birth weight.
* APGAR scoring at 1 and 5 minutes.
* Admission to neonatal intensive care unit (NICU)

Ethical approval for the study was obtained from the Research and Ethical Committee of Alexandria University. All cases included in the study were proper counseled and signed their informed consent.

RESULTS

Table 1: Comparison between the two studied groups according to sFlt1

sFlt1 (pg/ml)	Severe (n = 35)	Fit (n = 35)	U	p
Min. – Max.	7989.82 – 15923.80	8780.49 – 25111.94	152.50*	<0.001*
Mean ± SD.	10297.96 ± 1811.17	14320.64 ± 3647.79		
Median (IQR)	9871.08 (9039.50 –	13933.49 (12052.24 –		

As regards SFLT-1 there was statistically significant difference between the two groups , it was higher in fits group by mean value (14320.64 ± 3647.79) than severe PE group mean value (10297.96 ± 1811.17) pg/ml.

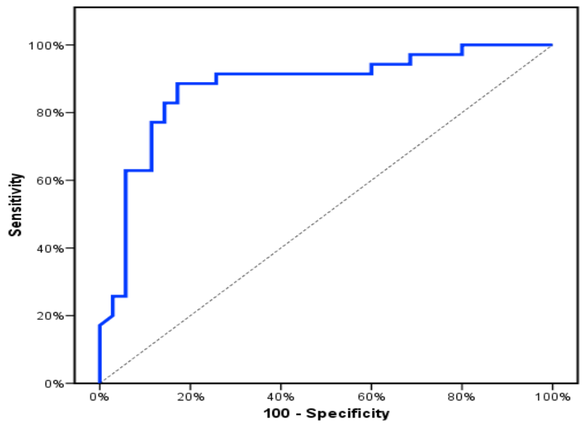

Figure: ROC curve for sFlt1 (pg/ml) to diagnose severe preeclampsia patients from eclamptic fits.

CONCLUSION

* Soluble fms-like tyrosine kinase-1 (sFlt-1) levels is significantly increased in severe preeclampsia group and in eclamptic fits group but was higher in eclamptic group.
* Sflt-1 can be used as a predictor to maternal complications especially the eclamptic fits.
* The calculated cutoff point to predict severe preeclampsia by using the ROC curve, ≤11425.15pg/dl .with 88.57 % sensitivity, 82.86 % specificity, 83.8% PPV and 87.9% NPV.
* The calculated cutoff point to predict eclamptic fits by using the ROC curve >11588.74pg/dl.with 85.71 % sensitivity, 82.86 % specificity, 83.3% PPV and 85.3% NPV.