

PREECLAMPSIA, COMPLICATIONS, CHALLENGES, THE SITUATION OF PREECLAMPSIA DURING 2019-2021 AT MATERNITY HOSPITAL "QUEEN GERALDINE"

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ABSTRACT

Preeclampsia is a pregnancy-related hypertensive disorder characterized by high blood pressure and often proteinuria after 20 weeks of gestation. It poses significant risks to both the mother and fetus, and if untreated, can lead to severe complications or even be life-threatening. Preeclampsia is a complex condition with significant maternal and fetal risks. Early detection, understanding its underlying mechanisms, and addressing disparities in health care access are critical to improving outcomes. Ongoing research and advancements in prenatal care are essential to better manage and eventually prevent this condition.

Key words: preeclampsia, complications, challenges, atmaternity.

INTRODUCTION

Preeclampsia is one of the most serious conditions that can occur during pregnancy, affecting 2-8% of pregnancies globally. It represents one of the three major causes of maternal and fetal morbidity and mortality during pregnancy (1). This condition is characterized by a combination of high blood pressure (hypertension) and high levels of protein in the urine (proteinuria). Preeclampsia usually starts after the 20th week of pregnancy and can have serious consequences for both the mother and the fetus in severe cases.

Causes and Mechanisms. The causes of preeclampsia are not yet clear, but it is believed that several factors may contribute to its development:

Genetic and immunological factors: Genetic predisposition and an abnormal immune response of the mother's immune system to the placenta may play a role.

Placental problems: Issues in the development of the placenta, including poor blood flow in the uterine arteries, may influence the development of preeclampsia.

Oxidative stress: High levels of oxidative stress in the body can cause damage to the endothelium of blood vessels, contributing to hypertension and other complications of preeclampsia.

Symptoms and Diagnosis

According to the International Society for the Study of Hypertension in Pregnancy (ISSHP) (2).

Preeclampsia is defined as the onset of hypertension after the 20th week of pregnancy accompanied by proteinuria or maternal complications such as acute kidney injury (AKI), liver problems, neurological issues, thrombocytopenia, or hemolysis.

Diagnosis of preeclampsia is made through monitoring of blood pressure and protein levels in urine during regular prenatal check-ups.

Complications of Preeclampsia

Preeclampsia can lead to serious complications for both the mother and the fetus:

For the mother, it can cause cardiac complications, kidney failure, liver damage, and in severe cases, it can pose a life-threatening risk.

For the fetus, it can result in fetal growth restriction, brain damage, and in extreme cases, a high risk of fetal demise.

Effective predictive tests for preeclampsia direct towards early diagnosis, adequate pregnancy monitoring, and timely delivery.

Recent decades' screening tests for preeclampsia have included (3).

The first trimester screening test identifies pregnancies at risk for early-onset preeclampsia.

The preeclampsia screening test in later pregnancy indicates whether preeclampsia has developed or is likely to develop, with a high negative predictive value. Its positive predictive value is moderately accurate (4).

According to guidelines from the National Institute for Health and Care Excellence (NICE) and the American College of Obstetricians and Gynecologists (ACOG), the algorithm for predicting early-onset preeclampsia (5) has been implemented. It demonstrates superior performance in predicting early-onset preeclampsia compared to clinical risk factors alone, accurately identifying 82% of cases, doubling the detection rate achieved by applying clinical factors using NICE guidelines (6). This algorithm is based on measuring mean arterial blood pressure, Doppler examination of uterine arteries, and assessing circulating levels of Placental Growth Factor (PlGF).

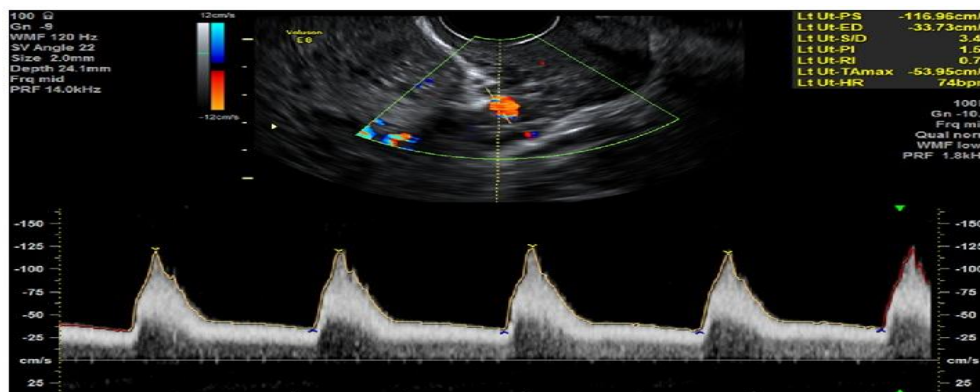


Figure 1. Normal Doppler waveform of the uterine artery

New biomarkers for preeclampsia (7) are: Placental biomarkers, endothelial biomarkers, cardiovascular biomarkers.

Based on the data collected from the High-Risk Obstetrics Department at the University Hospital "Queen Geraldine" in Tirana, we can present a simple analysis of the relationships between preeclampsia and fetal fluximetry status. These data include information from the year 2019 and encompass:

- Total hospitalized patients diagnosed with preeclampsia for the year 2019: 131
- Patients with uncompromised fluximetry: 84
- Patients with compromised fluximetry: 47
- For patients with compromised fluximetry, the details are as follows:
 - Total patients with compromised fluximetry: 47
 - Patients with reversed flow: 29
 - Patients with absent end-diastolic velocity (REDV): 4
 - Patients with equalized flow: 14

To present these data in a general and understandable manner, we can use a table to show the relationship between preeclampsia and fetal fluximetry status for the year 2019 (table 1).

Table 1. The relationship between preeclampsia and fetal fluximetry status for the year 2019.

	Uncompromised fluximetry	Compromised fluximetry
Total number of hospitalized patients	84	47
Number of patients with preeclampsia	-	47
Number of patients with reversed flow	-	29
Number of patients with REDV	-	4
Number of patients with equalized flow	-	14

In this table, the data for the total hospitalized patients, preeclampsia, and various fetal fluximetry conditions for patients in 2019 are presented. This table helps us observe how these variables vary and can provide an initial impression of possible relationships between preeclampsia and different fetal fluximetry states (8). Out of the 47 patients with compromised fluximetry, 32 underwent cesarean section, and 15 had vaginal deliveries. Among the 53 patients with preeclampsia and fetal growth restriction, 44 underwent cesarean section, and 9 had spontaneous vaginal deliveries. Based on the provided data:

Among the 47 patients with compromised fluximetry:

- 32 underwent cesarean section.
- 15 had vaginal deliveries.

Among the 53 patients with preeclampsia and fetal growth restriction:

- 44 underwent cesarean section.
- had spontaneous vaginal deliveries.

To present this data in a general and understandable manner, we can use a table to display the distribution of births according to the method of delivery and the condition of preeclampsia and fetal growth restriction (table 2).

Table 2. The distribution of births according to the method of delivery and the condition of preeclampsia and fetal growth restriction.

	Normal Delivery	Cesarean Section
Patients with compromised Doppler (47)	15	32
Patients with preeclampsia and fetal growth restriction (53)	9	44

This table displays the numbers for each patient group based on the delivery method (normal delivery vs. cesarean section) and their health condition (compromised Doppler vs. preeclampsia and fetal growth restriction). It allows us to observe the distribution of deliveries in these groups and may provide an initial insight into possible relationships between these health variables. Based on the data on the number of cases of preeclampsia for the years 2019, 2020, and 2021 at the Department of Pathology of High-Risk Pregnancies at SUOGJ "Queen Geraldine" Hospital in Tirana, across different age groups, we can present a table and a graph to display this information in a visualized manner (table 3).

Table 3. The number of preeclampsia cases by age group and year.

Age group (years)	15-24	25-34	35-44
Year 2019	25	75	31
Year 2020	14	51	13
Year 2021	18	46	16

It can be observed how the number of preeclampsia cases varies for each age group (15-24 years, 25-34 years, 35-44 years) for the years 2019, 2020, and 2021. We can observe possible trends in the number of preeclampsia cases across age groups during the three-year period

Management and Treatment:

- The management of preeclampsia includes regular medical monitoring, blood pressure control checks, and analysis of urine protein levels. In severe cases, hospitalization may be necessary for continuous monitoring and treatment of complications (8).

- Treatment for preeclampsia may involve medications to lower high blood pressure and prevent potential complications (9). In extreme cases, early delivery may be necessary to save the lives of both the mother and the fetus.

Prevention and Possible Therapies for Preeclampsia include:

- Intervention in dietary regimen (10), using supplements of Calcium and Vitamin D, and a Mediterranean diet approach.
- Use of cardiovascular medications such as Pravastatin, Endothelial receptor antagonists, and other medications like Aspirin, LMWH, antioxidants, and Magnesium.
- Lifestyle changes including regular exercise, reducing workload and stress, and working hours.

CONCLUSION

Preeclampsia is a serious condition during pregnancy that requires careful monitoring and prompt treatment to reduce the risk of serious complications. Regular consultation with an obstetrician-gynecologist is essential to identify any concerns early and ensure proper healthcare monitoring for both the mother and fetus.

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