PREVALENCE OF PREECLAMPSIA AMONG PREGNANT FEMALES

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ABSTRACT:
Pre-eclampsia is a disorder of pregnancy characterized by the onset of high blood pressure and often a significant amount of protein in the urine. When it arises, the condition begins after 20 weeks of pregnancy. This cross-sectional study was conducted among the patients presenting in obstetrical clinics of different tertiary care hospitals. A total of 150 patients were included in this study. All the patients were examined after taking informed consent. The blood pressure measurements, proteinuria were recorded. The maternal age and gestational age was noted. All the data was entered and analyzed using SPSS Ver. 23.0. A total of 120 patients were included in this study. The mean age of the patients 29.45±3.25 years. The mean gestational age was 6.34±1.23 months. Out of these 120 patients, 40 patients had hypertension (BP >140/80) and 20 patients also had associated proteinuria.

KEYWORDS: PREECLAMPSIA
INTRODUCTION:
Pre-eclampsia is a disorder of pregnancy characterized by the onset of high blood pressure and often a significant amount of protein in the urine. When it arises, the condition begins after 20 weeks of pregnancy. In severe cases of the disease there may be red blood cell breakdown, a low blood platelet count, impaired liver function, kidney dysfunction, swelling, shortness of breath due to fluid in the lungs, or visual disturbances. Pre-eclampsia increases the risk of poor outcomes for both the mother and the baby. If left untreated, it may result in seizures at which point it is known as eclampsia.
Risk factors for pre-eclampsia include obesity, prior hypertension, older age, and diabetes mellitus. It is also more frequent in a woman's first pregnancy and if she is carrying twins. The underlying mechanism involves abnormal formation of blood vessels in the placenta amongst other factors. Most cases are diagnosed before delivery. Rarely, pre-eclampsia may begin in the period after delivery. While historically both high blood pressure and protein in the urine were required to make the diagnosis, some definitions also include those with hypertension and any associated organ dysfunction. Blood pressure is defined as high when it is greater than 140 mmHg systolic or 90 mmHg diastolic at two separate times, more than four hours apart in a woman after twenty weeks of pregnancy. Pre-eclampsia is routinely screened for during prenatal care.
Pre-eclampsia affects 2–8% of pregnancies worldwide. Hypertensive disorders of pregnancy (which include pre-eclampsia) are one of the most common causes of death due to pregnancy. They resulted in 46,900 deaths in 2015. Pre-eclampsia usually occurs after 32 weeks; however, if it occurs earlier it is associated with worse outcomes. Women who have had pre-eclampsia
are at increased risk of heart disease and stroke later in life (1-3).

Material of Methods:
This cross-sectional study was conducted among the patients presenting in obstetrical clinics of different tertiary care hospitals. A total of 150 patients were included in this study. All the patients were examined after taking informed consent. The blood pressure measurements, proteinuria were recorded. The maternal age and gestational age was noted. All the data was entered and analyzed using SPSS Ver. 23.0. The qualitative variables were presented as numbers and frequencies. The quantitative variables were presented as mean and standard deviation.

RESULTS:
A total of 120 patients were included in this study. The mean age of the patients 29.45±3.25 years. The mean gestational age was 6.34±1.23 months. Out of these 120 patients, 40 patients had hypertension (BP >140/80) and 20 patients also had associated proteinuria.

DISCUSSION:
Although much research into mechanism of pre-eclampsia has taken place, its exact pathogenesis remains uncertain. Pre-eclampsia is thought to result from an abnormal placenta, the removal of which ends the disease in most cases. During normal pregnancy, the placenta vascularizes to allow for the exchange of water, gases, and solutes, including nutrients and wastes, between maternal and fetal circulations. Abnormal development of the placenta leads to poor placental perfusion. The placenta of women with pre-eclampsia is abnormal and characterized by poor trophoblastic invasion. It is thought that this results in oxidative stress, hypoxia, and the release of factors that promote endothelial dysfunction, inflammation, and other possible reactions. The clinical manifestations of pre-eclampsia are associated with
general endothelial dysfunction, including vasoconstriction and end-organ ischemia. Implicit in this generalized endothelial dysfunction may be an imbalance of angiogenic and anti-angiogenic factors.

One hypothesis for vulnerability to pre-eclampsia is the maternal-fetal conflict between the maternal organism and fetus. After the first trimester trophoblasts enter the spiral arteries of the mother to alter the spiral arteries and thereby gain more access to maternal nutrients. Occasionally there is impaired trophoblast invasion that results in inadequate alterations to the uterine spiral arteries. It is hypothesized that the developing embryo releases biochemical signals that result in the woman developing hypertension and pre-eclampsia so that the fetus can benefit from a greater amount of maternal circulation of nutrients due to increased blood flow to the impaired placenta. This results in a conflict between maternal and fetal fitness and survival because the fetus is invested in only its survival and fitness while the mother is invested in this and subsequent pregnancies.

Another evolutionary hypothesis for vulnerability to pre-eclampsia is the idea of ensuring pair-bonding between the mother and father and paternal investment in the fetus. Researchers posit that pre-eclampsia is an adaptation for the mother to terminate investment in a fetus that might have an unavailable father, as determined by repeated semen exposure of the father to the mother. Various studies have shown that women who frequently had exposure to partners' semen before conception had a reduced risk of pre-eclampsia. Also, subsequent pregnancies by the same father had a reduced risk of pre-eclampsia while subsequent pregnancies by a different father had a higher risk of developing pre-eclampsia.

In normal early embryonic development, the outer epithelial layer contains cytotrophoblast cells,
a stem cell type found in the trophoblast that later differentiates into the fetal placenta. These cells differentiate into many placental cells types, including extravillous trophoblast cells. Extravillous trophoblast cells are an invasive cell type which remodel the maternal spiral arteries by replacing the maternal epithelium and smooth muscle lining the spiral arteries causing artery dilation. This prevents maternal vasoconstriction in the spiral arteries and allows for continued blood and nutrient supply to the growing fetus with low resistance and high blood flow (4-6).

REFERENCES:


