Chapter 8

PREECLAMPSIA: PREDICTION AND PATHOPHYSIOLOGY

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INTRODUCTION

Preeclampsia (PE) is pregnancy-specific and represents one of the most important causes of maternal morbidity and mortality, affecting between 3-5% of all the pregnancies in the world. If PE is untreated it can also develop eclampsia. PE is characterized by the impairment of general vascular dilatation (Ciftci & etal., 2014). World Health Organization estimates that, worldwide, over 100.000 women die from preeclampsia each year (Soydemir F& Kenny L., 2006). It is known that the insufficiency of trophoblast invasion in early pregnancy leads to the impairment of angiogenesis of the mother, as well as upsetting the balance between nitric oxide and reactive oxygen products which controls vascular tonus and the coagulation cascade. This situation leads to the emergence of the clinical manifestations of the disease. The primary cause of the impaired circulatory homeostasis in PE is endothelial dysfunction. As a result; a maternal reaction occurs which involves endothelial cell dysfunction caused by the stimulated inflammatory response and hypertension development. It has been shown that significant oxidative stress is produced even before the beginning of PE, and this may play an important role in vasoconstriction which results in endothelial dysfunction (Ciftci & etal., 2014). It has been shown recently that patients with PE face an increased risk of developing cardiovascular diseases in later years (Ciftci & etal., 2014). Pre-eclampsia condition is defined by the sudden onset of hypertension (systolic blood pressure (BP) of >140 mm Hg and diastolic BP of >90 mm Hg, taken on two separate occasions at least 4–6 hours apart) and significant proteinuria (excretion of 300 mg or more of protein every 24 hours) after the 20th week of gestation (Hoodbhoy & etal.,2018).

Hypertension and proteinuria are essential for the diagnosis. Hypertensive disorders during pregnancy are chronic hypertension (High BP predating the pregnancy), gestational hypertension (When de novo HTN is present after 20

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lo-Ortega & et al., 2011). Antioxidant vitamins alone do not protect against preeclampsia (Brantsæter & et al.,2011). Outcomes from the Norwegian Mother and Child Cohort Study shows that supplementation of milk-based probiotics may decrease the risk of preeclampsia in primiparous women (Friedma, Lubarsky & Lim ,2011).

PROGNOSIS

Preeclampsia and eclampsia are approximated to be responsible for about 14% of maternal deaths per year (50,000-75,000) worldwide (Butalia & etal.,2018). Morbidity and mortality in preeclampsia and eclampsia are correlated to systemic endothelial dysfunction, vasospasm and small-vessel thrombosis leading to tissue and organ ischemia together with seizures, strokes, intracerebral hemorrhage, acute tubular necrosis, coagulopathies, and placental abruption. Fetal exposure to preeclampsia is combined with a greater than twofold increase in the risk of autism spectrum disorder and a greater than fivefold increase in the risk of developmental delay. (Walker & etal, 2015), (Sullivan & et al.,1994).

RECURRENCE

Overall, the recurrence risk of preeclampsia in a woman whose previous pregnancy was complicated by preeclampsia near term is around 10%. The recurrence risk of preeclampsia in a woman whose previous pregnancy was complicated by preeclampsia with severe features (Including HELLP, eclampsia) is approximately 20%. If a woman has had HELLP syndrome or eclampsia, the recurrence risk of HELLP syndrome is 5% and of eclampsia, it is 2% (Chames & et al., 2003). If preeclampsia appeared clinically before 30 weeks' gestation, the possibility of recurrence may be as high as 40% (von Dadelszen & etal., 2011).

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