INTRODUCTION

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Definition

Preeclampsia is a multisystem disease typically occurring in late pregnancy. The usual clinical manifestation being hypertension, oedema and proteinuria ***(Fallon, 1982).***

Incidence :

The incidence of preeclampsia and eclampsia is 7.6% for all ages. Older primipara is a high risk group ***(Foda et al. 1979).***

Preeclampsia is a serious disease, if it is not treated properly, it proceeds to eclampsia which is considered as the third serious cause of maternal mortality after haemorrhage and infection in child bearing period. The maternal mortality from eclampsia ranged from 0 to 10.3%. While the foetal mortality before 28 weeks gestation ranged from 90 to 100%, after 28 weeks it ranged from 40 to 50% and the perinatal mortality ranged from 13 to 30% ***(Jack and Paul, 1980).***

However in ***1989 Cunningham et al.*** reported that the maternal mortality in eclampsia has ranged from less than 1% to as much as 17.5%. At the same time. The perinatal mortality rate has ranged from 130 to 300 per 1000. Precise comparisons of perinatal mortality rates are difficult to make because of different definitions of stillbirths and meonatal deaths in different countries.

Preeclamptic criteria belie the multisystemic nature of the disorder, included among its widespread manifestations, vascular prostanoid,

platelet derangements, increased sensitivity to vasopressors and uteroplacental vascular lesions ***(Romero et al., 1988).***

As preeclampsia is a multisystem disease, the renal changes included reduction of renal perfusion and glomerular filtration that are below the normal non pregnant level. The plasma uric acid concentration is much more commonly elevated specially in women with severe disease, the elevation is a result primarily of decrease renal clearance ***(Cunningham et al, 1989).*** Hepatic changes in severe preeclampsia and eclampsia included hemorrhagic necrosis in the periphery of the liver lobule and alteration in hepatic function test as elevation of serum oxaloacetic transaminase levels ***(Cunningham et al., 1989).*** Also, in preeclampsia there is reduction of platelet count in about 34% of patients due to increase their destruction. Moreover, thrombocytopenia may precede frank clinical manifestations of preeclampsia by several weeks ***(Cauchi, 1984).***

This combination of abnormalities suggests that the disorder may result from progressive maternal and/or placental endothelial-vascular damage. Unfortunately, this hypothesis has been difficult to test because of the lack of specific markers for endothelial vascular injury. One such potential endothelial vascular injury marker is fibronectin ***(Lockwood and peters, 1990).***

Fibronectin (FN) refers collectively to a family of large glycoproteins (440 to 500 kioldaltons) that exist in nature as dimers or multimers of disulfide-linked subunits derived from a pool of similar but non identical peptides. The term plasma FN refers to the total pool of soluble FN in the circulation. Plasma FN is a major protein constituent

(300μg/ml) of plasma and posses both opsonic and clot stabilizing properties. The term cellular FN generally refers to the FN secreted by cultured cells or found insoluble forms within the extracellular matrix of tissues. Cellular FN plays a central role in cell adhesion, morphology and migration and is a major component of the endothelial extracellular matrix ***(Hynes, 1986). Lazarchick et al. (1986)*** reported that there was elevations in total circulating levels of FN in preeclamptic patients in comparison with controls.

Generalized arteriolar spasm with secondary interruption of blood flow and haemorrhage in the microcirculation (i.e. altered haemostasis) have long-been recognized as a part of the pathophysiology of preeclampsia, in which the hypercoagulability state may increase than in normal pregnancy and there is a decrease in fibrinolysis ***(Eriksen et al., 1987).***

Antithrombin III, is a glycoprotein with molecular weight of about 64,000 daltons found in the plasma in a concentration of about 25mg/dl, with a fractional catabolic rate of 50-60 percent of the plasma pool perday. It combines with and neutralizes thrombin. Moreover, it acts as a heparin co-factor, also it reacts with activated factor X, as well as activated factors IX, XI and XIII and plasmin but not VIIa. It is thus a general serine protease inhibitor, marked depression of antithrombin III occurs in disseminated intravascular coagulation ***(Cauchi, 1984).***

Weiner and Kwaan (1985) Proposed that using low antithrombin III which suggests increased clotting as marker for preeclampsia, also chronic hypertensive patients with superimposed preeclampsia showed lower antithrombin III than those with chronic hypertension alone.

The activity of the fibrinolytic system is strongly regulated by the abundant plasmin inhibitors (α_2- antiplasmin). It has been known for many years that plasmin could be inhibited by several protease inhibitors, including α_2- macroglobulin, α_1- protease inhibitor, antithrombin III and C_1 inhibitor. But, the observed inhibition rates were too slow to account for the rapid disappearance of plasmin activity in human plasma. The systematic search for a specific inhibitor of plasmin led to the discovery of α_2- antiplasmin ***(Millertz and Clemmensen, 1976).*** In the concentration present in human plasma, the α_2- antiplasmin inhibits plasmin with a half life of less than one tenth of a second ***(Wiman and Collen, 1978).***

Alpha$_2$- antiplasmin, in the serum there are two main antiplasmins, one in the alpha$_2$-globulin fraction, reacts quickly as a competitive inhibitor of plasmin. The other in the alpha1- fraction reacts more slowly but firmly with plasmin to produce an inactive complex. In the plasma the antiplasmin levels exceed the level of plasminogen ***(Cauchi, 1984).***

Saleh et al. (1988) found that preeclampsia both pure and superimposed, was associated with low α_2- antiplasmin ($P<0.05$) levels suggesting that fibrinolysis may occurred in preeclampsia. But, in chronic hypertension with pregnancy they found that alpha 2- antiplasmin was increased. They reported that low α_2- antiplasmin which lead to increased fibrinolysis may be considered as a marker for preeclampsia.

These three biochemical parameters (plasma fibronectin, antithrombin III and α_2- antiplasmin) were studied in other studies separately but in this work we study it collectively in cases of preeclampsia.