PRE-ECIAMPSIA

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Pre-eclampsia is primarily a disease of first pregnancy. It cannot he defined accurately, as its cause is un known. At present it is defined as a syndrome comprising hypertension and proteinuria[1]. Oedema is not included as a feature of normal pregnancy.

The diagnosis of pre-eclampsia is important for day today management of the case. Delivery remains the treatment of choice and is usually affected either after 36 weeks of gestation or prcterm, for maternal or foetal indications. Renal biopsy appears to be the most accurate means of identifying pre-eclampsia, though impractical, as results are delayed and invasive and, therefore infrequently used. Among clinically diagnosed cases, the diagnostic error can be as much as 45%[2] Consequently many women, delivered preterm for maternal hypertension presumed to be secondary to pre-eclampsia, do not have the syndrome and are potential candidates for anti-hypertensive drugs when conservative measures, such as bed rest, fail. latrogenic preterm delivery of the non-pre-eclamptic hypertensive gravida (and its sequelae to the newborn) might be avoided if chronic hypertension could be differentiated from pre-eclampsia and treated medically. A number of parameters are reported to be associated with pre-eclampsia. These include hypocalciuria, hypocalcaemia, increased blood urea, uric-acid, seromucoid fraction of maternal glycoprotein, thrombin production[7], plasma immunoreactive atrial natriuretic peptide, reduced antithrombin III activity and an imbalance in placental prostacyclin and thromboxane production[3-9]. The degree of disturbance in the last 5 parameters is directly proportional to the severity of pre-eclampsia[5-9].

Pre-eclampsia can cause changes in virtually all organ systems, most notably in cardiovascular, renal haematologic and immunologic systems. There is increased vasoconstriction frequently associated with increased platelet aggregation due to acquired defect in platelet function and number[10], reduced placental blood flow, decrease in immunoglobin IgG, IgA and increase of IgD concentration[11]. Some of these changes are present before the clinical diagnosis of pre-eclampsia.

The renal lesion of pre-eclampsia is quite different from that of glomerulonephritis and is the principal unequivocal characteristic of this disease. There is glomerular endotheliosis, present in 80% of primiparas. Glomeruli are large, swollen but not hypercellular. The basement membrane is not thickened and the epithelial cells as well as their foot process appear normal. Glomerular endotheliosis is also demonstrated on immunofluorescent microscopy[12]. But fibrin im
munoglobulin such as IgG, 1gM and anti-haemophilic globulin deposits, initially reported by Vessalli et al[13] and later by others is not seen in adequate amount (>1+) and in sufficient numher[12]. Fisher et al[12] therefore, do not support Petrucco[14] and Seymour's" contention that fibrin IgG and 1gM are invariably present in the kidney of the pre-eclamptics and may even relate to the etiology of the lesion. The mechanism of the origin and development of the renal lesion can be described in purely physical terms[6]. There are biochemical and pathological similarity between pre-eclampsia and nephrotic[11,12] 'the serum immunoglobulin concentration changes are also similar to those found in the nephrotic syndrome". The magnitude of protein excretion correlate with the severity of the biopsy lesion[12]. The renal lesion is completely reversible within a few weeks of delivery[6] and remote cardiovascular prognosis is also no different than in the population at large[12].

The treatment of pre-eclampsia is still supportive rather than curative. The use of antihypertensive and other supportive measures seems to only retard the rate of progress of the disorder and to postpone the inevitable[16]. Beta blocker therapy is reported to reduce the incidence of pre-eclampsia among patients

with gestational hypertension[17]. Fleparin administration does not seem to alter the course of pre-eclarnpsia[18]. Main reason for unsatisfactory treatment of this disorder is that, by the time the condition is recognised, well-established and at times irreversible vascular damage is already present, particularly involving the utero-placental circulation. The proper development of the utero-placental vascular bed and the enlargement of the spinal arterioles, in particular, is postacyclin dependent process and manifestly abnormal in pregnancy complicated with hypertension[7]. In pre-eclampsia there is imbalance in placental postacyclin and thromboxane production with thromboxane production increasing to seven times the normal[17], Aspirin is reported to reduce thromboxane production and improve prostacyclin production thereby improving the uteroplacental circulation[16], Selective thromboxane synthetase inhibitors and thromboxane A2 receptor antagonists are in early clinical investigations. Prostacyclin synthesis stimulants are also under trial. Dietary supplementation with omega 3-fatty acids is reported to produce sustained increase in prostacyclin and decrease in thromboxane production[16]. Currently low dose aspirin is being recommended for prevention of pre-eclampsia but only patients at risk of developing pre-eclampsia should be put on this therapy, as chances of haemorrhagic complications, though rare, are present[16].

Several methods, of identifying pregnant women who are at risk for pre-eclampsia, have been proposed. These include “rollover’ test and angiotinsin II infusion test, the isometric handgrip exercise test, and the mean arterial pressure test[19]. The sensitivity and specificity of ‘rollover’ test are open to question[16]. Other tests have their own limitations and cannot be used as screening tools. Recently low urinary calcium and creatinine ratio (<0.04) and microalbuminuria (>1 l1ug/ml) have been demonstrated to be useful in predicting development of pre- eclampsia between 24-34 weeks of gestation among patients who are free of symptoms. When used as a single test urinary calcium/creatinine ratio is a better predictor than microalbuminuria[19].

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