INTRODUCTION

Pre-eclampsia is a disease occurring in the second half of pregnancy and is characterized by hypertension, proteinuria and edema, if not treated it progress to eclampsia, a condition in which generalised convulsions occurs **(Chesley et al., 1968).**

. Pre-eclampsia complicates 6-8% of human pregnancies and is one of the major causes of maternal and fetal mortality and morbidity **(Zuspan, 1991b).** Although the pathogenesis of pre-eclampsia is well defined, its cause remains obscure **(Friedman et al., 1991).**

Pre-eclmpsia is a complication of pregnancy characterized by hypertension plus proteinuria or generalised edema **(Cunningham et al., 1993)**

Altered immunoregulatory mechanisms are implicated in the etiology of pre-eclampsia. Central to many of the hypotheses concerning an immunological cause is the belif that pre-eclampsia reflects a partial breakdown of the immunological mechanisms responsible for fetoplacental-allograft maintenance **(Hill et al., 1986).**

Various immunopathological observations were reported in pre-eclampsia including: no significant change in percentage and absolute number of T-lymphocytes, by using an erythrocyte rosetting method **(Gudson et al., 1977).** While**Sridama et al., (1983)** found a reduction of percentage of total lymphocytes with monoclonal antibodies, due to diminution of both T-helper and suppressor T-cells. Decreased natural killer cells activity was reported by **Alanen et al., (1982); and**

Hill et al., (1986), but **Toder et al., (1983)** reported an increase in its activity. **Siklos et al., (1987)** found a decrease in killer cell activity. Also, decrease in lymphocyte transformation with phytohemagglutinin **(Need et al., 1976)**, and with other allogeneic cells in mixed lymphocyte **(Jenkins et al., 1978)** were reported. In addition, many investigators have found alternations in the humoral immune system during pre-eclampsia **(Rappaport et al., 1989)**. But the findings of these studies have been confusing and contradictory **(O'Brien 1992)**.

The immunoregulatory mechanism depends partly on lymphocyte-macrophage interaction and partly on a mosaic of cytokines including gamma interferon and neopterin **(Bulmer et al., 1990)**.

Gamma interferon (immune interferon) secreted by sensitized lymphocytes. One of its major immunoregulatory function is the enhancement of natural killer cells and macrophage **(Richard et al., 1987)**. Gamma interferon is the active principle supernatant of activated T cells, responsible for neopterin released from monocytes **(Huber et al., 1984)**.

Neopterin is a pyrazino-pyrimidine compound derived from guanosine triphosphate (GTP), it represents an intermediate product in the synthetic pathway of biopterin. Immune responses in vitro and in vivo are accompanied by an increased release of neopterin **(Kaufman et al., 1978; and Huber et al., 1984)**.

Serum neopterin levels were hardly ever above cut-off in pregnant women. While neopterin was only moderately elevated in mixed cord blood due to the special immune status of the newborn **(Lellé et al., 1989)**. On

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the other hand, **Haeger et al., (1992)** found significant increase in plasma neopterin mean value in sever pre-eclamptic patients during delivery.

Increased excretion of neopterin molecule was observed during in vivo hyperimmune stimulation due to infections with viruses **(Wachter et al., 1979)** , intracellular bacterial or protozoal pathogens **(Fuchs et al., 1983; and Reibnegger et al., 1984)** , autoimmune states (**Hausen et al., 1983),** allografting **(Margreiter et al., 1983; and Neiderwieser et al., 1984)**, or malignant growth **(Huber et al., 1983).**

In vitro stimulation of peripheral blood mononuclear cells with mitogenic lectins, virally or chemically modified autologous cells, or allogeneic lymphocytes lead to rapid release of neopterin into culture supernatants within three days **(Huber et al., 1983).**

Measurement of neopterin provides an insight into cellular immunology, that is hard to obtain by other methods . Neopterin levels are easily detected by high performance liquid chromatography (HPLC); by radioimmunoassay (RIA) or by ELISA technique **(Hausen et al., 1989).**