SUMMARY

Pre-eclampsia (pregnancy induced hypertension) is a pathological form of pregnancy, could represent the partial rejection mechanism of the fetal allograft. Also, it might be either a partial or total malfunction or maladaptation of either the fetal or the maternal immune system. This disease characterized by clinical manifestations including: hypertension, proteinuria and/or edema.

Several studies describing the various changes in lymphocyte number, subsets and functional activity during pre-eclampsia. These studies have used various in vitro tests including: lymphocytes response to various stimulants, the enhanced erythrocyte rossette method, monoclonal antibodies, indirect immunofluorescence and flowcytometry. But the findings of these studies have been confusing and contradictory.

Since the etiology of pre-eclamsia remains obscure, pre-eclampsia activity can be only evaluated by indirect laboratory measures.

Despite the intensive efforts to make the clinical assessment more objective by applying numerical grades, a relevant reliable and reproducible method to quantitate pre-eclampsia activity and to monitor drug therapy is still needed.

The pathogenesis of pre-eclampsia is rather complex, involving many cells and cytokines. There is evidence that, macrophages play an important role in the biochemical and immunologic processess that characterize pre-eclampsia. Evaluation of monocytes activation seems to be important to reflect this important part of the pathogenesis of the disease as well as to

quantitate pre-eclampsia activity.

Neopterin, a pyrazino-pyramidine derivative from guanosine triphosphate, was found to be an excellent biochemical marker for the in vivo state of cell mediated immunity, as well as in vitro state. In a broad spectrum of diseases, activation of monocytes/macrophages occured by gamma interferon derived from activated T-lymphocytes. The applicability and utility of this technically simple test was recently demonstrated by many investigators.

Pre-eclampsia is one of those disease in which measurement of neopterin seems to be promising. Previous studies have demonstrated that, serum neopterin, reflects clinical activity of the sever pre-eclampsia, and showed that, monocytes and macrophages are highly activated spontaneously rather than in normal pregnancy and that amongst their secretory products is neopterin.

The aim of this study was to determine neopterin levels in the sera of 25 pre-eclamptic patients with their matched control groups (25 non pregnant and 25 normal pregnant women). The pre-eclamptic group was divided into 10 patients with mild form of pre-eclampsia and 15 patients with sever pre-eclampsia. Furthermore, this study comprised determination of supernatant neopterin, and culture supernatant neopterin in the previous three groups. It was done by using phytohemagglutinin and other allogeneic cells respectively. Radioimmunoassay was performed for measurement of neopterin concentrations.

The results of this study, showed that, neopterin levels are significantly higher in pre-eclamptic group than the two control groups. In

addition, levels of serum neopterin, PHA-induced neopterin, and MLC-induced neopterin increased significantly as the disease becomes more active. Thus confirming the important pathogenetic role of monocytes/macrophages in active pre-eclampsia.

Furthermore, the levels of neopterin by using in-vivo and in-vitro study did not show any significant difference between non pregnant and normal pregnant group. This may point to normal function of T-cell mediated immunity in these two control groups.

Moreover, there are positive correlations between serum neopterin and the two types of neopterin (PHA-induced neopterin and MLC-induced neopterin), in pre-eclamptic group. And also,in mild and sever pre-eclampsia, there are positive correlations between the clinical parameters of the disease and levels of neopterin by using in-vivo and in-vitro study.

Neopterin as a reliable sensitive and reproducible marker of T-cell monocytes/macrophages activation, can be used as a parameter of pre-eclampsia disease activity and as a future research project in other gynaecological and obstetrical diseases as well.