

SHORT COMMUNICATION

STUDY OF SERUM IMMUNOGLOBULINS IN NORMAL PREGNANCY

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Abstract : Suppression of maternal immune response may be one of the factors contributing to continuation of pregnancy, a state in which the foetus exists as a well tolerated homograft. Studies on serum immunoglobulin levels in pregnancy show varying results. In this study serum immunoglobulin levels of Ig G, Ig A and Ig M were estimated in 75 normal pregnant women, 25 in each trimester. These were compared with a control group of 25 healthy women.

A graded significant decrease in Ig G levels was observed throughout the pregnancy. Ig A levels decreased during the first and second trimester of pregnancy. A significant increase in Ig M levels from the first to third trimester was observed.

Key words : serum immunoglobulins pregnancy

INTRODUCTION

Recent advances in transplantation immunology have stimulated considerable interest in immunologic aspects of pregnancy. Pregnancy may be considered as a state wherein the foetus exists as a well tolerated homograft. It is possible that the foetus escapes the process of rejection due to depression of maternal immune responses. Conversely, a disturbance in immunologic tolerance may lead to abortion. Keeping this in view, we have estimated serum immunoglobulins in pregnant women in all the three trimesters of pregnancy.

METHODS

The present study was carried out on 75 pregnant women (age 16-35 years) who were attending the antenatal clinic. In each trimester 25 cases were included. A group of 25 healthy non-pregnant women were selected as a control group.

Two ml of venous blood was collected in

sterile plain bottle. Blood was allowed to clot and serum was collected after centrifugation.

Readymade agar gelplates supplied by 'Hoechst' pharmaceuticals were used for this study. Five microlitre of patients serum was discharged into the well on the plate. For Ig G 1:15 dilution in isotonic saline was used. For Ig A and Ig M undiluted sera were used. The plates were kept covered in a petri dish with moist filter paper at room temperature. The ring diameters were read after 50 hrs in case of Ig G and Ig A and were measured after 80 hrs in case of Ig M.

RESULTS

The mean value of Ig G in control group was 1859.28 mg/dl. The mean value of Ig G in first trimester was 1817.64 mg/dl. It was 1687.93 mg/dl in second trimester and 1623.33 mg/dl during third trimester. The mean value of Ig G showed a continuous decrease throughout the duration of

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pregnancy. The difference between Ist and IIIrd trimester values was highly significant ($P < .001$).

As shown in Table I, it was observed that there was a decrease in Ig A values throughout the pregnancy as compared to control group. The decrease in Ig A values in First and Second trimester of pregnancy is significant ($P < .05$).

The mean value of Ig M in first trimester of pregnancy is 188.70 mg/dl which increased to 251.46 mg/dl in third trimester of pregnancy. This increase in Ig M level from Ist to IIIrd trimester is significant ($P < 0.01$).

TABEL I: Mean levels of Immunoglobulins.

	Immunoglobulin level (mg/dl)			
	Control group	Ist Trimester	IInd Trimester	IIIrd Trimester
IgG	1859.28	1817.64	1687.93	1623.33*
IgA	247.90	197.14	205.64	213.70
IgM	219.50	188.70	207.98	251.46*

*Significantly different from the Ist Trimester level ($P < 0.01$).

DISCUSSION

The decrease in IgG levels in pregnancy may be because of unique maternal and foetal immunologic relationship. The receptors on placenta selectively bind the Fc portion of only IgG and facilitate the passage of maternal antibodies into foetal circulation. The fall in IgG concentration could also be a manifestation of decreased immunologic reactivity in pregnant state due to increased levels of steroids.

The decrease in IgA may be due to impaired synthesis or it may be due to the immunosuppressive effect of pregnancy. We observed significant increase in IgM levels in III trimester as compared to I trimester. This increase may be due to the fact that IgM mostly remains intravascular or it could be in response to antigenic challenges during pregnancy.

Our findings are consistent with those of Horne et al (1), Maroulis et al (2), Studd (3) and Lizana and Ludwig (4). However Raghvan et al (5), Bazaz et al (6) and Gupta et al (7) noted higher levels of immunoglobulins in pregnancy. Variations in results indicate that more work is needed in order to assess the immunologic aspects of pregnancy.

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