

SUMMARY

The role of HLA alloantibodies as well as the correlation of the cell mediated immune response and the incidence of HLA alloantibodies in normal and unsuccessful pregnant women have been investigated by studying several parameters like HLA haplotype and gene frequencies, incidence of HLA alloantibodies, quantitation of serum immunoglobulins (IgG & IgM), percentage and the ratio of CD4⁺ & CD8⁺ T-cells and the blastogenic transformation of peripheral blood lymphocytes with mitogenic stimulation in in vitro.

The frequency of the antigens A1, B5, B15, Cw1, Cw3, Cw5 of class-I and DR1, DR3, DQw1 of class-II were significantly higher where as antigens Cw1, Cw2 of class-I and DQw2, DQw3 of class-II were significantly lower in case of unsuccessful pregnancy. We also observed few haplotypes were with significantly positive linkage disequilibria in case of unsuccessful pregnancy.

The incidence of HLA alloantibodies against class-I antigens was observed much higher but against class-II antigens, it was found lower in normal pregnant women compared to unsuccessful pregnant women. The lower percentage of anti-HLA antibodies against class-I antigens in unsuccessful pregnant mother may be due to the sharing of the homologous HLA antigens between

the foetus and the mother.

The concentration of IgG (mg/dl) and IgM (mg/dl) were measured both in normal and unsuccessful pregnant women with the help of column chromatography and immunodiffusion procedure. The concentration of IgG level was found higher in normal than the unsuccessful pregnancy and the concentration of IgM was lower in normal when compared to that of the unsuccessful pregnancy. The higher level of IgM is indicating the strong primary immune responsiveness of the mother in case of unsuccessful pregnancy. The high level of IgG and the higher incidence of HLA alloantibodies (Against class-I antigens) may have some role in protecting the foetus separately or with the combination of both in case of normal pregnancy. Possibly they cause the inhibition of the CMI response and prevent foetal rejection upto a certain period (280 days approx.) in case of normal pregnancy.

The total percentage of blasts as well as the T and B blast cells were higher in case of unsuccessful than that of the normal pregnancy. So it may be said that the complications arising in case of unsuccessful pregnancy may be due the strong immune responsiveness of the mother against foetus.

The high percentage of B-blast cells in case of unsuccessful pregnancies may be due to the stimulation of B cells by the factor secreted by the activated T cells or may be due to the antigenicity of the trophoblastic cells, and in that case the

the plasma cells (B blast cells) will secrete antibodies against the trophoblastic cells. Possibly HLA alloantibodies help to block the trophoblastic antigen as well as may inhibit the function of the Th cell.

In the present investigation we observed that the percentage of $CD8^+$ T cells was much higher in case of non-pregnant (virgin) women. However, the ratio of $CD4^+$ and $CD8^+$ T cells was lower in normal pregnant than the unsuccessful pregnant women. The results indicated that the suppressor activity could be more pronounced in the normal pregnant women. Possibly the increased function of the suppressor cell is co-responsible for maintaining the mother's tolerance of the paternal allograft, the foetus.

The lymphocytes of the normal and unsuccessful pregnant women were cultured separately in in vitro by using autologous sera for different hours and observed that in case of unsuccessful pregnancy, the percentage of blast cells was much higher than the normal pregnancy. The lymphocytes of the unsuccessful pregnant women also cultured with the sera taken from the normal pregnant women having same blood groups and compared with the degree of the blastogenic transformation of lymphocytes of normal pregnant women, cultured with autologous serum. The percentages of blast cells were more or less same in both the cases but lower than the percentage of the blast cells of unsuccessful pregnant women, when cultured with autologous serum.

The lower percentage of blast cells in case of normal pregnancy may be due to some factors those are present in the serum and possibly responsible for the inhibition of CMI response.

In the present investigation we observed that the blastogenic transformation of the lymphocytes of non-pregnant (virgin) women and delivered women were very close to each other and were higher than the pregnant women before delivery.

It is indicated from the above results that the CMI response is inhibited during the pregnancy especially in case of normal pregnancy, possibly to avoid the rejection of the foetal allograft

In conclusion it can be said that possibly the HLA alloantibodies (against class-I antigens) are playing a role to inhibit the CMI response of the mother upto a certain period (approx. 280 days in case of normal pregnancies) against the foetal allograft. The presence of higher percentage of HLA alloantibodies against the class-II antigens in case of unsuccessful pregnancy remain unexplained and needs further investigation. The present investigation suggests that the unsuccessful pregnant women may become successful possibly by increasing $CD8^+$ T-cells or by elimination the $CD4^+$ T cells upto the desired ratio or may be by immunosuppression of the mother.