SUMMARY

The investigations reported in this paper were based on the principle that a long term allogeneic exposure to fetal alloantigens during pregnancy could result in an accumulation of maternal lymphocytes that would be immunologically reactive specifically to those antigens. Naturally, immunologic reaction against the fetal tissues is inefficient in rejecting the fetal graft. Thus, the efficiency of the maternal lymphocytes and the cause of their inability to destroy the fetal graft were investigated. Direct cell-mediated cytolysis was employed to measure the cytolytic capability of maternal cells against the mononuclear cells from cord blood. Allogeneic destruction was evaluated by comparison with cells from nulligravidous and other unrelated parturient women. Preliminary results indicated that maternal cells were relatively hyporeactive specifically to fetal cells.

It was also determined that the hyporesponsiveness resided in the maternal cells, but not in the environmental constituents, e.g., the pregnancy associated substances in maternal or fetal plasma. The multiparous plasma was found to nullify the low activity of parturient cells and could be said to be augmentative to cytolysis. This augmentation was partly mediated through the mechanisms of antibody-dependent cell-mediated cytolysis. The augmentative capability of maternal plasma was diminished after an incubation with fetal cells, thus suggesting two possible modes by which fetal
cells protect themselves during direct exposure to maternal cells; one, by absorbing augmentative factors that could potentiate cytolysis, another, by releasing interfering factors to inhibit cytolytic expression.

Stimulation of maternal cells with fetal cells in vitro did not generate secondary cytolytic cells. On the contrary, some products derived from the feto-maternal stimulation were depressive to maternal cell cytolysis. Other products of feto-maternal cell stimulation showed a potentiative effect on the incorporation of thymidine into PHA stimulated mononuclear cells. Freshly released mediators exerting different effects on the immunologic reaction were postulated to be the principal factors that regulated the immunologic events leading to protection rather than rejection of the fetal graft.
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