A Study on Unexplained Recurrent Aborters from the
Standpoint of Cellular Immunity

T. Kimbara, H. Tanaka, K. Aoki, T. Yamamoto and Y. Yagami
Department of Obstetrics and Gynecology,
Nagoya City University, Medical School, Nagoya.

In recent years, immunotherapy using the husband's peripheral mononuclear cells has been performed to treat habitual aborters of unknown etiology and favorable results have been reported. The efficacy of this method of treatment is, according to many reports, due to the production of blocking factors but it is conjectured that not only humoral immunity but also cellular immunity is involved. In regard to the cellular immunity of habitual aborters we studied cell-mediated lympholysis activity (CML activity) and made a report at the Association's meeting last year. In this paper, besides CML activity we also determined the percent ratio of suppressor T-cells in the peripheral blood and suppressor cell activity which we now report.

The subjects of this study were habitual aborters who had a successful continuation of pregnancy after twice receiving immunotherapy using their husband's peripheral
mononuclear cells. Examinations were performed three times, namely, before immunotherapy, after 2 weeks at the time of the first immunotherapy treatment and 2 weeks later at the time of the second immunotherapy treatment.

CML activity increased significantly after the first immunotherapy treatment and it decreased significantly after the second immunotherapy treatment. After the second immunotherapy treatment we conducted a time course study on CML activity (culture: 2 days, 4 days, 6 days) but before the 6th day in culture no peak was observed. (Fig. 1).

Using two-color flow-cytometry we determined the percent ratio of suppressor T-cells (CD8+ bright 11+ cell) in the peripheral blood against total lymphocytes. In cases successfully treated by immunotherapy a tendency for an increase in suppressor T-cells was observed after both the first and second immunotherapy treatments but in unsuccessful cases a tendency for a decrease was observed (Fig. 2).

Also, to measure suppressor cell activity we made a mixed lymphocyte culture using peripheral mononuclear cells of habitual aborters before immunotherapy as responders and peripheral mononuclear cells of the husbands as stimulators. We added the peripheral mononuclear cells of habitual aborters as regulators to a mixed lymphocyte culture at
each of the 3 times of examination and determined the
$^3$H-thymidine uptake. Suppressor cell activity was
expressed as percent suppression. In successful immuno-
therapy cases, suppressor cell activity increased
significantly at the first and second immunotherapy
treatments in comparison with the pre-treatment period
(Fig. 3).

Conclusion

1. In habitual aborters who had a successful continuation
of pregnancy following immunotherapy, the reduction in
CML activity brought about after the second immuno-
therapy treatment was not just an apparent reduction at
the time of culturing.

2. In habitual aborters who had a successful continuation of
pregnancy following immunotherapy, an increase in the
percent ratio of suppressor T-cells was observed and a
significant increase in suppressor cell activity was
observed.

3. These results strongly suggest that besides the humoral
immunity of the blocking factor, also suppressor cells
are involved in the successful treatment by immuno-
therapy of habitual aborters of unknown etiology.
CML Activity after 2nd. Immunotherapy (Time Course Study)

% Cytotoxicity

% Suppression

Fig. 1

Suppressor Cell Activity before and after Immunotherapy

Fig. 3

n=6

P<0.05
Fig. 2