EFFECTS OF ANTI-MHC ANTIBODY OF MOTHER ON FETAL SEX AND DEVELOPMENT OF NEW BORN RATS

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An increase in anti-male Major Histocompatibility Complex (MHC) antigens is observed in the female after pregnancy¹. Despite these higher levels and the fact that immunoglobulin (IgG) can pass through the placenta, she can become pregnant again and bear further offspring. In the preceding report, we demonstrated that high titer of anti-MHC antibodies induced by allo-skin grafting did not affect on pregnancy². Here, we showed the effects of this sensitization on fetal sex and development of the new born rat.

Skin from female DA (RT1a) or LEW (RT1l) rats was grafted onto female LEW rats four times with a two week interval between each graft. The anti-DA titer of serum from rats was measured after skin grafting. After the LEW recipients were mated with a normal male DA rat, the number of new born rats and the implantation site was counted. The F₁ hybrids from treated mothers were assed by hematological examinations at 10 weeks age.

The skin grafts from the DA rats were rejected, while the skin from the LEW rats were accepted by all the female LEW recipients. A significant increase in the anti-DA antibody titer
was recorded in the LEW recipients after allo-skin grafting. The syngeneic skin grafted femals became pregnant and gave birth to 10 ± 3.4 offsprings, while the allogenic skin grafted recipients had 9.5 ± 3.5 new born rats (< 5%; Student t test). There was also no significant difference in the implantation site in the uterus between the control and experiment rat (12.7 ± 5.8, 11.7 ± 3.2, respectively). The fetal sex was summerized in the below.

<table>
<thead>
<tr>
<th>Skin Grafting</th>
<th>♂ : ♀</th>
<th>( \chi^2 = 0.03 )</th>
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</thead>
<tbody>
<tr>
<td>Syngeneic</td>
<td>19 : 29</td>
<td></td>
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<tr>
<td>Allogeneic</td>
<td>27 : 17</td>
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There was no significant difference of F\(_1\) hybrids from treated mothers in development and hematological examination.

Our results indicated that allo-MHC antibodies induced by allo-skin grafts did not affect on bearing F\(_1\) hybrids, but might do on fetal sex as previously reported in human\(^3\).

References

