Influence of Tumor-inhibiting Agents upon Tumor Immunity.
(Studies with the MBAO-resistant Subline of the Yoshida Sarcoma)
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With a view to make clear the influence of a large dose of Methyl-bis-(β-chlorethyl)-amine N-Oxide (MBAO) upon tumor immunity, the present authors investigated the behavior of tumor cells heterologously transplanted into mice treated with MBAO, using a subline of the Yoshida sarcoma resistant to this agent. As a MBAO-resistant subline it has been used the MBAO-s.c. resistant subline for this study, which was resistant to treatment with consecutive subcutaneous injections of daily dose of 1 mg of MBAO beginning just after inoculation of the tumor and was not dependent on MBAO. The general character of this subline was reported in detail in the former paper (Hirono, I. Nagoya J. Med. Sci. 17; 102, 1954). Mice weighing about 20 g of mixed breed were used for transmission of the tumor, each receiving intraperitoneal inoculation of 0.1 ml of tumor ascites, containing about $10^7$ tumor cells. MBAO was administrated as follows; 1) consecutive subcutaneous injections for 5 days before inoculation and tumor was inoculated on the next day of the last injection (Group I), 2) consecutive subcutaneous injections for 5 days starting just after the inoculation (Group II) and 3) 6 times, every other day, intraperitoneal injections and tumor was inoculated just after the 3rd injection (Group III). A daily dose of MBAO was 1 mg, dissolved in 0.2 ml of physiological saline. Another group of mice inoculated with the same tumor ascites served as control without injection. The behavior of tumor cells was investigated with Giemsa-stained smear preparations of the tumor ascites withdrawn every day after the inoculation.

Results obtained in each group are represented in Table 1. Generally speaking, Yoshida sarcoma cells heterologously inoculated into the abdominal cavity of mice always show temporary growth, without any treatment, growing up into the state of pure culture of tumor cells, but thenceforth they disappeared rapidly from the peritoneal fluid and all of mice healed from disease.

The MBAO resistant tumor cells also showed the similar course, i.e., the tumor attained the state of pure culture about 3 days after the inoculation and the mitotic figures of tumor cells were frequently observed. On the 6th day or thereabouts after the inoculation, however, the tumor cells rapidly disappeared and
mice were completely cured.

Table 1

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of animals</th>
<th>Days after inoculation of tumor</th>
<th>5 days</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>10</td>
<td>10* (10)</td>
<td>9 (10)</td>
<td>3 (10)</td>
<td>2 (9)</td>
<td>1 (9)</td>
<td>0 (7)</td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td>13</td>
<td>13 (13)</td>
<td>13 (13)</td>
<td>12 (13)</td>
<td>10 (12)</td>
<td>2 (8)</td>
<td>1 (8)</td>
<td></td>
</tr>
<tr>
<td>Group III</td>
<td>11</td>
<td>11 (11)</td>
<td>9 (11)</td>
<td>8 (11)</td>
<td>6 (11)</td>
<td>2 (8)</td>
<td>0 (6)</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>11</td>
<td>10 (11)</td>
<td>2 (11)</td>
<td>0 (11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Animals in which tumor cells were in the state of pure culture

( ) Survivor

In the groups treated with MBAO, however, the tumor cells remained in the peritoneal fluid for a longer period than in the control group. Especially, in about 85 percent of mice in the 2nd group, tumor cells still remained in the state of pure culture 8 days after the inoculation. About half the treated animals, likewise, died about 8–9 days after the inoculation. In all of these animals, the infiltrative growth was found microscopically in the pancreas and retroperitoneal fatty tissue, even if it was not observed macroscopically. Control animals sacrificed on the 8th or 9th day after the inoculation, showed no infiltrative growth both macroscopically and microscopically. Since, however, 25 percent of mice without tumor inoculation, treated for 5 days with consecutive subcutaneous injections of daily dose of 1 mg of MBAO, died of toxic effect of the agent within 10 days after the beginning of injection, it is not clear whether death of mice in treated groups was due to the growth of tumor or to the toxic effect of the agent.

According to results of another experiment, in which change of leukocytes in circulating blood in number following consecutive subcutaneous injections with same dose of MBAO was studied, leukocyte count reached the minimal 6–7 days after the beginning of injection.

Based on the results mentioned above, it may be said that the injections of a large dose of MBAO decrease leukocyte and inhibit the production of acquired immunity of host animals.

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58. 子宮癌に対するアザンの低周波イオンホーレー療法

御園生雄三（千葉大学医学部産婦人科）

Azan Iontophorese Therapy by Low Frequency Rectangular Pulses for Uterine Cancer

YUZO MISONO

§ まえがき：手術不能の子宮頸部癌に対して，S-Azaguanine（アザン）のイオンホーレー...

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