Refusal of Food Ingestion of Old Male BUF/Mna Rats in Metabolic Cages

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Abstract Forty-four percent of old male BUF/Mna rats showed refusal of food intake when they were isolated in metabolic cages.

Keywords: refusal of food ingestion, old male BUF/Mna rats, metabolic cage


1. Introduction

Rats of the BUF/Mna (BUF) strain develop thymus hyperplasia, thymoma, muscle atrophy, and proteinuria in almost 100% [1-10]. During the course of the experiment on proteinuria, we incidentally found that some of old male rats of this strain refused to take food in isolated metabolic cages.

2. Materials and Methods

Nineteen to 46 weeks old rats of the BUF, ACI/NMs (ACI), and WKY/NCrj (WKY) strains were singly placed in metabolic cages, made of plastics and wire net, for 24 hrs from AM. 8 to AM. 8 of the next day (Figure 1). Volume of urine, and intakes of pellet diet and water were measured. Content of urinary protein was measured by the method described in the previous paper [1]. Pellet diet (CMF, Oriental Yeast, Tokyo, Japan) and tap water were given freely, and actual intakes of food were measured, respectively.

3. Results

Eight of 18 male BUF rats (44%) refused to take pellet diet (Table 1), feeding 0 gr. Female BUF rats, female and male ACI and WKY rats fed 4-20 gr during the 24 hrs, except 1 rat each (Figure 1). Older and heavier BUF rats tended to refuse the intake of the diet during the dwelling in the metabolic cages (Table 1). Refused rats drank smaller amount of water (data were not shown).

4. Discussion

Mechanism of the occurrence of acute anorexia in male BUF rats is not known. However, the BUF strain is known as susceptible strain for the development of thymus

Table 1. Results of 24 hours collection of urine of rats of the BUF

<table>
<thead>
<tr>
<th>Strain</th>
<th>Sex</th>
<th>Age#</th>
<th>No. &amp; % of refused rats</th>
<th>Av. Intake of food (g)</th>
<th>Average body weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Refused</td>
<td>Not refused</td>
</tr>
<tr>
<td>BUF</td>
<td>F</td>
<td>35</td>
<td>0/10 0</td>
<td>11.0±3.1</td>
<td>(-)        248±37</td>
</tr>
<tr>
<td>ACI</td>
<td>F</td>
<td>27</td>
<td>0/12 0</td>
<td>6.3±3.8</td>
<td>(-)        198±33</td>
</tr>
<tr>
<td>WKY</td>
<td>F</td>
<td>21</td>
<td>1/17 6</td>
<td>14.5±4.2*</td>
<td>192         233±27</td>
</tr>
<tr>
<td>BUF</td>
<td>M</td>
<td>43</td>
<td>8/18 44</td>
<td>9.3±3.3*</td>
<td>472±83      361±86</td>
</tr>
<tr>
<td>ACI</td>
<td>M</td>
<td>19</td>
<td>1/18 6</td>
<td>9.3±3.5*</td>
<td>278         269±60</td>
</tr>
<tr>
<td>WKY</td>
<td>M</td>
<td>22</td>
<td>0/9 0</td>
<td>12.6±3.5</td>
<td>(-)         292±64</td>
</tr>
</tbody>
</table>

# Weeks. F: female, M: male. *Average values of the food intake in the rats, excluded those of the refused.
hyperplasia, thymoma, muscle atrophy, and proteinuria (Matsuyama, 1990). It is known that proteinuria of BUF rats depend on the mutation of actin related protein 3 [ARP3]. Therefore, it can be assumed that NPY/AgRP neuron, which regulates appetite [3,13], might be impaired by the dysfunction of ARP3. These diseases develop almost all rats of both sexes in the strain. However, the refusal of food intake occurred exclusively in males. Male BUF/Mna rats may be more nervous for the change of the dwelling.

References