Effects of anticholinergic agent on autonomic nervous system (ANS) function of overactive bladder syndrome patients

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Aims of study

We have reported (2013 ICS abstract No. 172) that “overactive bladder (OAB) patients have an abnormality of autonomic nervous system (ANS) function.” It was shown that, at rest, sympathetic nervous system (SNS) function is enhanced, while parasympathetic nerve function tends to decrease under an orthostatic load. Thus, the autonomic nervous reflex, by suppressing the sympathetic nerves and stimulating the parasympathetic nerves, stabilizes the heart rate and contractile force, and maintains blood pressure at an appropriate level for the standing position. By evaluating the fluctuation of ANS together with the fluctuation of the circulatory system by applying an active orthostatic load, the function of the ANS can be correctly diagnosed.

Method

To measure autonomic nervous function, we used the heart rate variability analysis method. We carried out measurements using an electrocardiogram or by placing electrodes in the hands for 3 minutes in the resting state sitting down, and then for 3 minutes under an orthostatic load in the standing position.

Evaluation score calculation formula

Maximum 10 points
High points are better

Materials

- Male and female patients with untreated OAB
- Patients who scored 2 or more points on the OABSS urgency scale, and scored a total of 3 or more points

OABSS; Overactive Bladder Symptom Score

Exclusion criteria

- Patients with neurogenic OAB and with complications that affect the system
- Urinary tract infection
- Diabetes
- Alcoholism
- Amyloidosis, etc.
Agent (0.1 mg of imidafenacin twice daily) was administered for approximately 3 months.

Results

<table>
<thead>
<tr>
<th>n</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Age (years)</td>
<td>72.4±8.7</td>
<td>70.7±6.6</td>
</tr>
<tr>
<td>Female</td>
<td>76.2±4.4</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8.4±3.4</td>
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OABSS

Parasympathetic nerve (PSN)

Evaluation score calculation formula

According to the evaluation score calculation formula used, ANS function improvement was confirmed.

Summary/Conclusion

Anticholinergic agent not only contributed to improvement of lower urinary tract symptoms, but also brought about improvement effects in ANS function.