

## **DEFECATORY FUNCTION IN MULTIPLE SYSTEM ATROPHY; A COLONIC TRANSIT TIME AND VIDEOMANOMETRY STUDY**

### **Aims of Study**

Constipation is a prominent lower gastrointestinal tract dysfunction that occurs frequently in multiple system atrophy (MSA) (also known as Shy-Drager syndrome). We investigated colonic transport and dynamic rectoanal behaviour during filling and defecation in patients with MSA.

### **Methods**

Colonic transit time (CTT) and rectoanal videomanometry analyses were performed in 15 patients with MSA (10 men and 5 women; mean age, 63.5 years; mean duration of disease, 3 years; decreased stool frequency (< 3 times a week) in 9, difficulty in stool expulsion in 11) and 10 age-matched normal control subjects (7 men and 3 women; mean age, 62 years; decreased stool frequency in 2, difficulty in stool expulsion in 2).

### **Results**

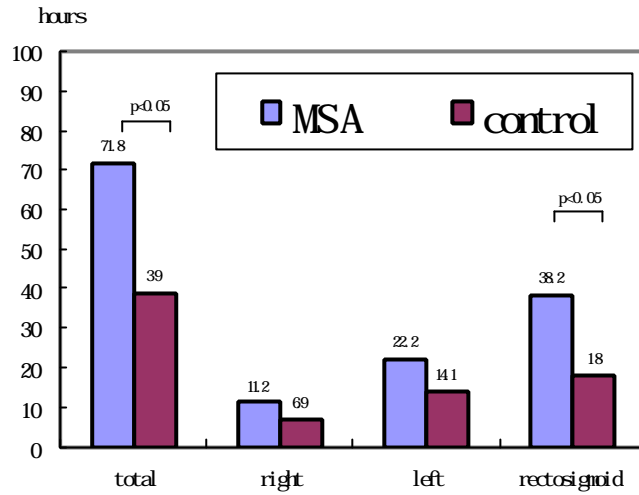
In the MSA patients, CTT was significantly prolonged in the rectosigmoid segment ( $p < 0.05$ ) and total colon ( $p < 0.05$ ) compared to the control subjects. At the resting state, anal closure pressure of MSA patients were lower than that in control subjects, though not statistically significant. However, anal squeeze pressure of the patients was significantly lower than that in control subjects ( $p < 0.01$ ) and external sphincter EMG of the patients showed denervation motor unit potentials. MSA patients showed a smaller increase in abdominal pressure on coughing ( $p < 0.01$ ) and straining (not significant). During filling, MSA patients showed normal rectal volumes at first sensation and maximum desire to defecate, and normal rectal compliance. However, they showed smaller amplitude in phasic rectal contraction ( $p < 0.01$ ), which was accompanied by an increase in anal pressure that normally decreased, together with leaking in three patients. During defecation, most MSA patients could not defecate completely with larger post-defecation residuals ( $p < 0.05$ ). MSA patients had weak abdominal strain, smaller rectal contraction on defecation and larger anal contraction on defecation (paradoxical sphincter contraction on defecation: PSD) than those in control subjects, though these differences were not statistically significant.

### **Conclusions**

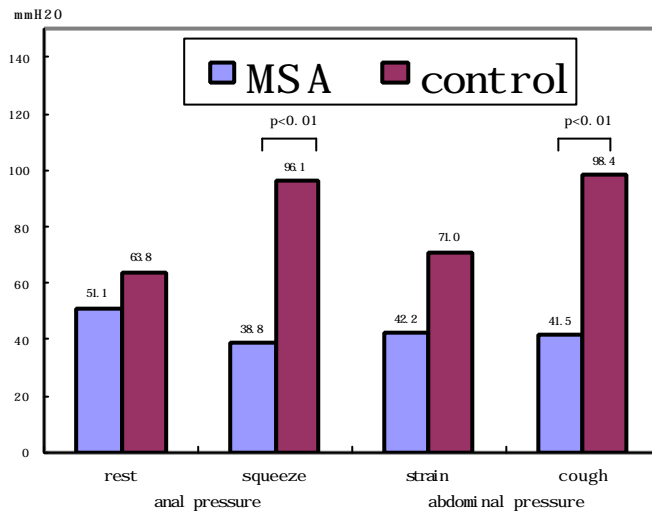
Slow colonic transit, decreased phasic rectal contraction, weak abdominal strain and PSD were all features in our MSA patients with frequent constipation. Sphincter weakness as a cause of fecal incontinence is also prominent in this disorder.

### **References**

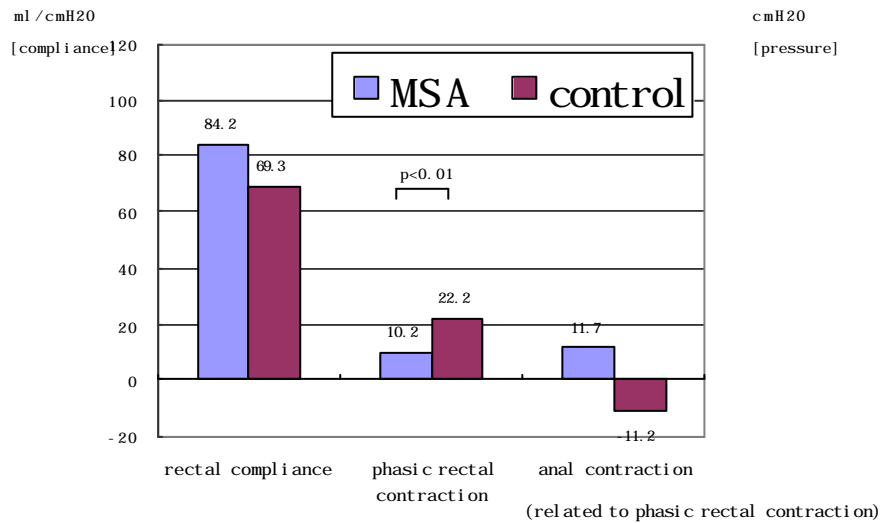
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**Figure 1** Results of colonic transit time.



**Figure 2** Results of videomanometry – resting state.



**Figure 3** Results of videomanometry – rectal filling.

