

COLONIC TRANSIT TIME AND RECTOANAL VIDEOMANOMETRY ANALYSES IN PARKINSON'S DISEASE- WITH SPECIAL REFERENCE TO BLADDER DYSFUNCTION

Aims of Study

Constipation is a prominent lower gastrointestinal (GI) tract dysfunction in Parkinson's disease (PD). Recent advances in investigative Neuro-Gastroenterology offer us a better insight into the underlying pathophysiology and appropriate management for constipation, which is not only troublesome but also a cause of emergent obstruction in this disorder.

Methods

We performed colonic transit time (CTT) and rectoanal videomanometry analyses in 12 patients with PD (10 men and 2 women, mean age 68 years, mean duration of disease 5 years, mean Hoehn and Yahr grade 3; decreased stool frequency (< 3 times a week) in 6, difficulty in stool expulsion in 8; difficulty in urination in 3, urinary urgency/frequency in 6, urinary incontinence in 2) 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; difficulty in urination in 2, urinary urgency/frequency in 2).

Results

Comparing with control subjects, colonic transit study showed that PD patients had slowed CTT, i.e., significantly prolonged in rectosigmoid segment ($p < 0.01$) and total colon ($p < 0.05$), but not in right and left segments. Rectoanal videomanometry showed that at the resting state, maximum anal closure and squeeze pressures of PD patients were lower than those in control subjects, though not significant. However, the patients had smaller increase in abdominal pressure on coughing ($p < 0.01$) and straining ($p < 0.01$). Sphincter motor unit potentials of the patients were normal. During filling, PD 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 ($p < 0.05$), which was accompanied by an increase in anal pressure that normally decreased, together with leaking in two patients. This is in contrast to detrusor hyperreflexia as a common urodynamic finding in the patients. During defecation, most PD patients could not defecate completely with larger post-defecation residuals ($p < 0.01$). PD patients had weak abdominal strain and smaller rectal contraction on defecation than those in control subjects, though not significant. However, the patients had larger anal contraction on defecation ($p < 0.05$), evidence of paradoxical sphincter contraction on defecation (PSD), which is in contrast to detrusor-sphincter dyssynergia as a rare urodynamic finding in the patients.

Conclusions

Slow colonic transit time, decreased phasic rectal contraction, weak abdominal strain and PSD are all features in our PD patients with frequent constipation. These findings may provide implications for the treatment of neurogenic constipation and bladder dysfunction in this disorder.

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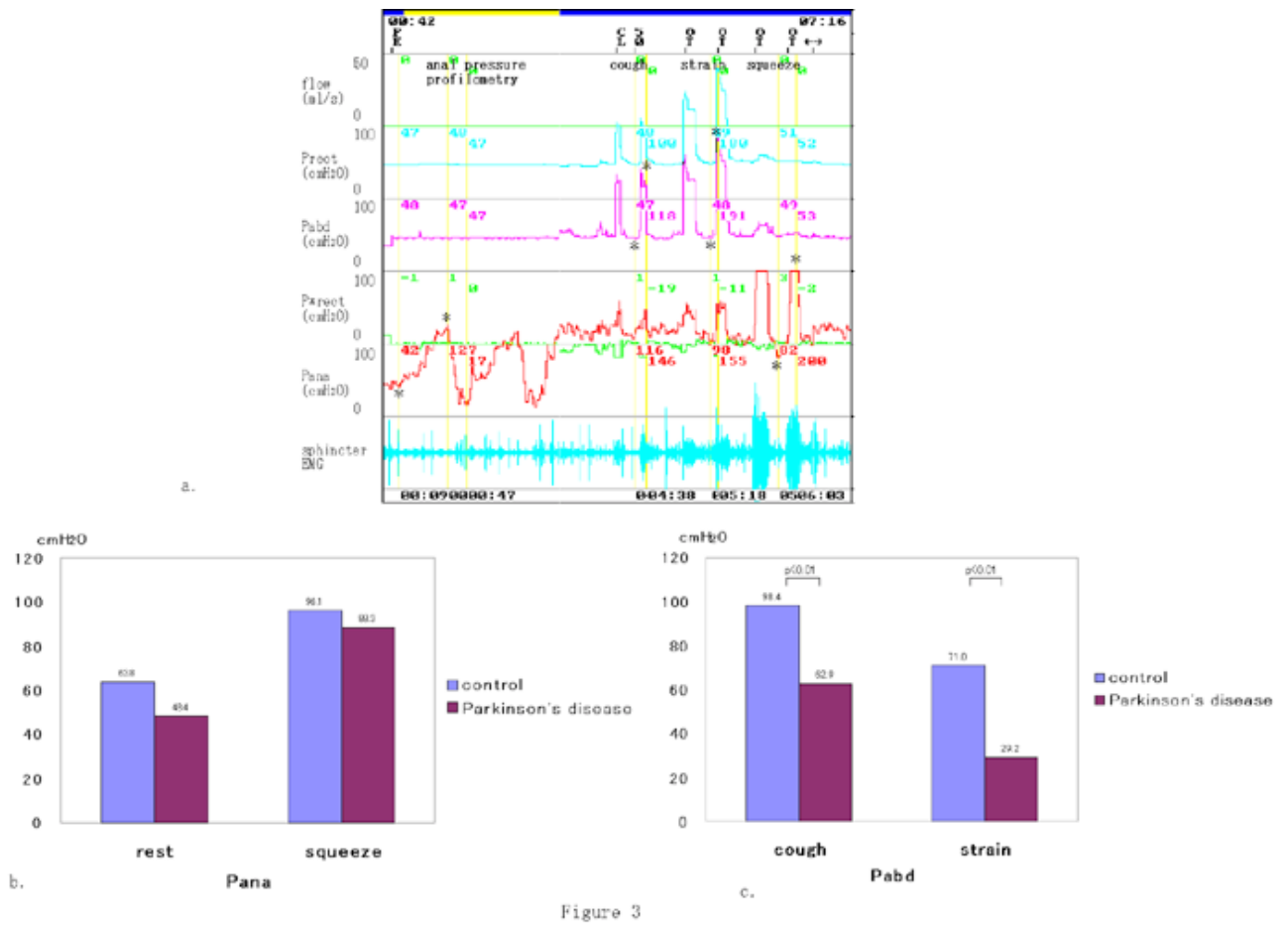


Figure 3

Figure 1(upper) Colonic transit study.

Imaginary lines were drawn using the spinal processes, 5th vertebra, pelvic outlet and left iliac crest as landmarks. R: right; L: left; Rec: rectum; Sig: sigmoid colon.

Figure 2(lower) Rectoanal videomanometry at rest.

Prect: rectal pressure; Pabd: abdominal pressure; P*rect (Prect star): true rectal pressure (Prect - Pabd); Pana: anal pressure; EMG: electromyography.