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Anorectal dysfunctions in Parkinson's disease ☆

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ABSTRACT

Anorectal symptoms are frequently found in patients with Parkinson's disease (PD), mainly manifested as diffuse lower abdominal discomfort, constipation, and fecal incontinence. Among these symptoms, constipation may precede by years the motor manifestations of PD. Research has focused for decades on selection of a measurement method for detection of abnormalities and support of clinometric instruments for anorectal symptoms. We review those manifestations and their contribution to evaluation of the anorectal symptoms in patients with PD.

1. Introduction

Bowel symptoms are well defined and are frequently found in patients with Parkinson's disease (PD). Among these symptoms, constipation and defecatory dysfunction may precede by years the motor PD [1]. Recent neuropathological studies have clearly shown, during preclinical or early stages of disease, both deposition of α-synuclein and a defect of dopaminergic neurons in the enteric nervous plexuses, even suggesting that the pathology of PD may originate there, rather than within the brain [2,3].

Constipation and defecatory dysfunction in patients with PD may be associated with abnormalities found during colonic inertia to the anal outlet [4–7]. Defecatory dysfunction is a consequence of uncoordinated action of the muscles involved with defecation. Relaxation of the puborectalis muscle allows opening of the anorectal angle and perineal descent, facilitating fecal expulsion. Outlet obstruction may occur when both the puborectalis muscle and the external anal sphincters do not relax sufficiently [8,9]. This functional outlet obstruction may cause both excessive straining and a sense of incomplete emptying, or, sometimes, may induce painful defecation. Development of the functional outlet obstruction is more frequent in PD, affecting more than 60% of PD patients [10]. Another mechanism appears to involve the colonic musculature, which induces a slow transit of feces through the colon. Several studies have demonstrated considerably prolonged mean colonic transit time in PD patients. Accumulation of Lewy bodies in VIPergic enteric neurons may explain this finding, which may result primarily from impaired reflex relaxation of the distal smooth muscle, due to loss of inhibitory motor neurons [13]. In addition, fluctuation in the severity of anorectal abnormalities in response to dopaminergic medications has been documented, showing that this symptom can also occur in association with medication [14].

For decades, research has focused on selection of a measurement method for detection of abnormalities and support of a clinometric instrument for large bowel symptoms. We review those manifestations and their contribution to evaluation of large bowel symptoms in PD.

2. Clinical assessment scales

Unlike other gastrointestinal symptoms, there are no scales or questionnaires suitable for use in the evaluation of both constipation and defecatory dysfunction. More comprehensive, non-motor and autonomic symptom scales, that include item rating of gastrointestinal symptoms, have been reported; however, they focused in part on constipation, fecal incontinence, and straining for defecation [15–17]. In PD, large bowel symptoms develop in association with colon inertia or outlet dysfunctions, or both. Therefore, in order to solve patients' discomforts, more systematic questionnaires for estimation of each dysfunction should be required.

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3. Instruments for detection and support of a clinometric scale for large bowel symptoms

3.1. The colonic transit time test

The colonic transit time is a measure of the time required for passage of the intestinal contents. Various techniques can be used in estimation of this colonic function. The simplest method is the use of radiopaque markers [18]. However, this technique can be time consuming and requires daily visits to confirm the result.

This test is suitable for the assessment of slow transit constipation [19]; the slow transit of feces through the colon can demonstrate the colonic involvement in PD [12]. In addition, the early involvement of enteric neurons may explain the finding that constipation is a very early, premotor sign of PD.

3.2. Anorectal manometry

Anorectal manometry is not a single test, but consists of a series of measurements that include the assessment of the anal sphincter function, cough reflex, rectal sensation, recto-anal inhibitory reflexes, and rectal compliance [20]. In constipated patients, manometry assists with detection of the ability of coordinated defecation and sensory abnormalities of the anorectum. Three types of abnormalities can be recognized: paradoxical anal contraction (i.e. paradoxical elevation of

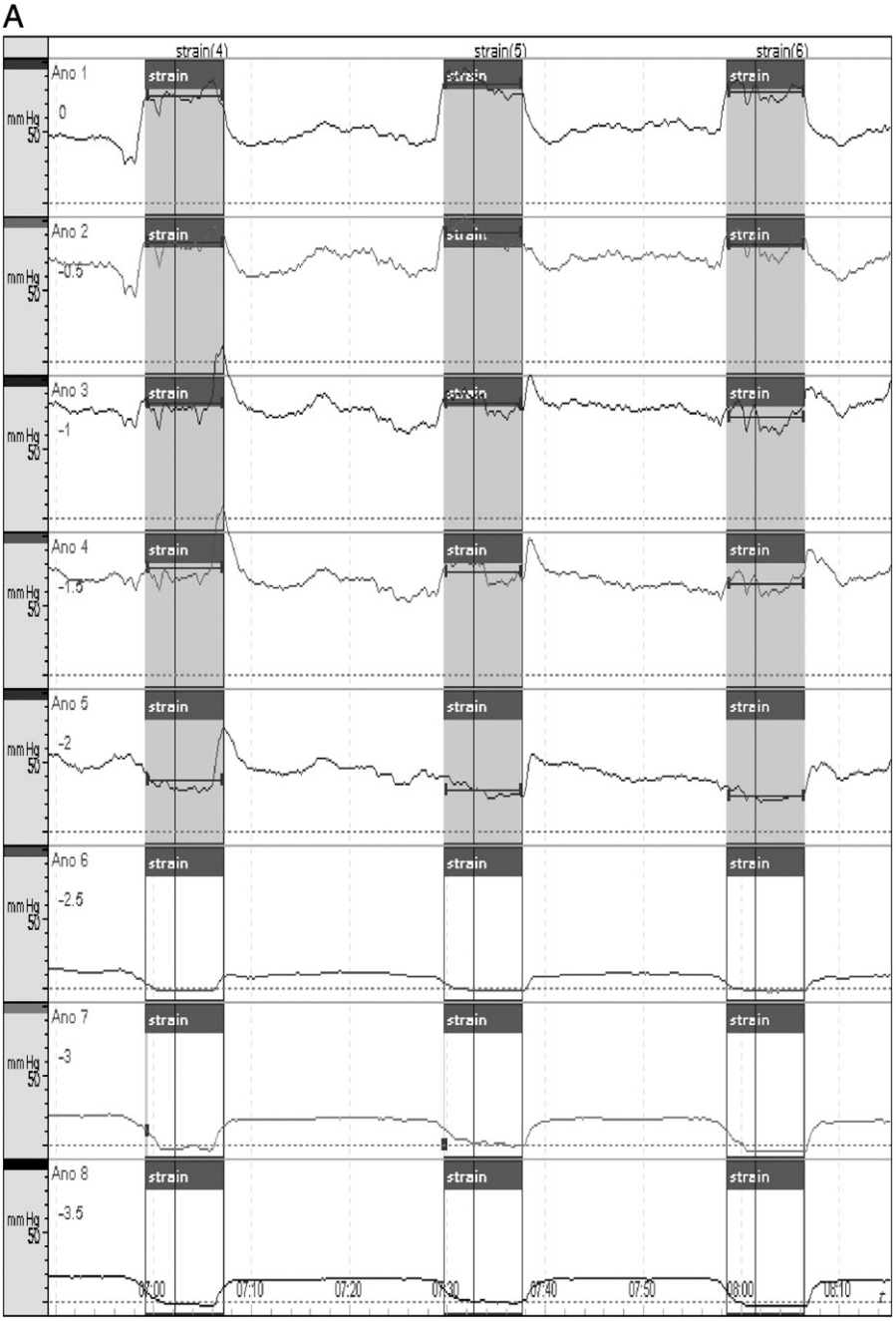

Fig. 1. Anorectal manometry during straining. (A) Normal relaxation of the external sphincter during straining; simultaneous decreases of pressures (more than 50% from resting pressure) are observed in the anal canal (CH 5–8) during straining, (B) paradoxical external anal contraction during strain, suggesting anismus (paradoxical increase was seen in the distal channels).