EDITORIAL

Deconstructing Obstructive Defecation Syndrome with Adaptive Biofeedback

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The common syndromes of chronic constipation (CC) and obstructive defecation syndrome (ODS) have a significant impact on the quality-of-life of affected patients. In up to 40% of patients, CC is caused by the behavioral condition termed dyssynergic defecation (DD), which entails a paradoxical contraction, inadequate relaxation, or both of the puborectalis muscle, often associated with inadequate propulsive forces during defecation. Though the symptoms and physiological testing are the mainstay of diagnosis. [1, 2], the diagnosis of DD is however often difficult as more than half of healthy volunteers have manometric findings consistent with DD [3], possibly due to procedure-related factors such as positioning in the left lateral position and the embarrassing nature of the investigation [4]. According to several guidelines, DD can therefore only be diagnosed on the basis of at least two complementary tests (i.e., balloon expulsion tests, manometry, proctography, or defecography) [4, 5].

Biofeedback is an operant conditioning therapy; in the case of ODS it entails either visualization of anorectal and abdominal muscle activity with manometry or electromyography in order to help the patient increase intra-abdominal pressure and relax the anal sphincter musculature during defecation. Due to its proven efficacy in ODS in several randomized trials—showing it to be more effective than sham feedback or medical therapy with laxatives and benzodiazepines—it is recommended by several guidelines for the treatment of chronic constipation as a first-line treatment. Sustained symptom improvement can be achieved in more than 70% of patients [6–8].

Patient selection for biofeedback is crucial as, especially patients with constipation due to other causes do not benefit to the same degree as do patients with ODS [9]. Further predictors of success are the patient's motivation and adherence to treatment, raised symptom severity, and digital assistance with stooling [10, 11]. Another obstacle for effective biofeedback training is the availability of specialist biofeedback therapists. Since office-based biofeedback therapy is expensive and time consuming, randomized controlled trials have recently shown promising results for home-based biofeedback devices in order to provide cost-effective treatment to more patients [12].

In the current issue of *Digestive Diseases and Sciences*, Yuemei Xu and colleagues present the interesting result of a randomized controlled trial of adaptive versus fixed (i.e., conservative) biofeedback therapy in 42 patients with constipation due to CC [13]. Regardless of randomization, all patients received two weeks of sham biofeedback. The adaptive biofeedback regimen (ABF) included visual, auditive and qualitative feedback throughout the sessions and more importantly thresholds (i.e., sensation) were adapted specifically to the patients' baseline characteristics and abilities and were furthermore adapted according to achieved goals. During the Fixed Biofeedback Regimen (FBR), the experimental design was similar with the exception that the thresholds and goals were fixed and not individualized for the patient. Both groups were asked to perform exercises at home and attended biweekly training sessions. Treatment success was defined by improved physiological results, symptom improvement, need for medication, and the number of complete spontaneous bowel movements per week, as is recommended by the US Food and Drug Administration for trials of medications in chronic constipation.

Twenty-one patients with CC completed ABF and 21 underwent FBR. The number of complete bowel movements, symptoms of constipation, need for medications, and physiological results were significantly improved in the ABF group when compared with patients who underwent FBR, clearly demonstrating the efficacy of a tailored biofeedback treatment individualized to the patients' needs and baseline criteria.

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As in many other biofeedback studies, this study can be seen as partly biased as there was no full sham intervention since blinding was not possible. Another criticism is the small number of patients included in the study as differences in bowel movements and physiologic parameters between the two groups might be overestimated due to the low number of patients. Nevertheless, the data generated by this study provide a compelling argument for individualized tailored feedback regimens that can be investigated in larger randomized controlled trials in order to improve patient outcomes and further the current success and popularity of biofeedback treatment. It remains to be seen if a tailored biofeedback approach might also be of benefit in refractory cases of chronic constipation due to DD.

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