

Table 1. Biofeedback treatment of defecation disorders in adults: summary of clinical trials

Author	Sample size	Study type	Comparison made	Outcome
Pourmomeny et al. (82)	65	RCT	Balloon defecation training vs BF	BF superior
Hart et al. (83)	21	RCT	EMG-based BF vs sham BF	BF superior
Chiarioni et al. (11)	99	RCT	PEG vs BF	BF superior
Heymen et al. (73)	84	RCT	BF vs diazepam vs placebo	BF superior to diazepam and placebo
Rao et al. (12)	77	RCT	BF vs sham vs medical care	BF superior to sham and medical care
Rao et al. (13)	26	RCT	BF vs usual medical care	BF superior
Simon and Bueno (84)	30	RCT	EMG-based BF vs control	BF superior
Simon and Bueno (85)	20	RCT	EMG-based BF vs control	BF superior

BF, biofeedback; EMG, electromyography; PEG, polyethylene glycol; RCT, randomized controlled trial.

may be used to identify dyssynergia (68) and to provide biofeedback training for DD (11,73). Although a reduction of 20% or more in anal EMG activity during evacuation is considered to be normal, data are limited. Less than 20% reduction during evacuation, however, has been correlated with dyssynergic defecation, as identified by manometry and abnormal BET (54).

Colonic transit. Colonic transit should only be evaluated in patients who do not respond after biofeedback therapy or who exhibit normal anorectal function during testing; this can be performed with radiopaque markers, colon scintigraphy, or the wireless motility capsule after (optimally) discontinuing medications that can affect colonic transit. Radio-opaque marker studies (Sitz-Mark; Konsyl Pharmaceuticals, Ft Worth, TX) are inexpensive, easily available, easy to perform, and entail modest radiation exposure (74). Although up to 50% of patients with DD exhibit slow colonic transit if tested, such patients should be treated initially with pelvic biofeedback therapy because slow transit often normalizes with successful biofeedback to correct pelvic floor abnormalities. Assessments of colonic transit are reproducible in patients with simple constipation (74) but less so in patients with DD or slow transit constipation (75). Contrary to older studies, a recent multicenter study concluded that the distribution of markers in the rectosigmoid colon is not associated with DD (76). Radionuclide gamma scintigraphy (77,78) or a wireless pH-pressure capsule may be used when it is also desirable to measure gastric emptying and small intestinal transit (79). If patients can only discontinue medications for a few days, scintigraphy is preferred.

Differential diagnosis. DDs may be associated with IBS (47) and conditions that are associated with rectal bleeding (e.g., hemorrhoids or solitary rectal ulcer). Abdominal imaging and/or a colonoscopy should be considered when clinically indicated. Some patients with severe symptoms have anxiety, depression, or generalized somatoform disorders that need to be addressed concurrently (5,32). In patients with DD and excessive perineal descent, with or without pelvic organs prolapse, it can be challenging to determine the contributions of structural and functional disturbances to DD. Slow transit constipation may occur in isolation or coexist with DD (2). In up to two-thirds of patients with the latter, slow colonic transit is probably secondary to outlet dysfunction rather than an independent, comorbid condition (80).

Treatment

Conservative treatment. Anorectal biofeedback therapy is the cornerstone for managing DD. Other conservative measures are also helpful, especially because anorectal biofeedback therapy is not widely available or may not benefit all patients (81). Potential options include eliminating medications that cause or exacerbate constipation, use of soluble fiber (e.g., psyllium and *Sterculia*) or laxatives for patients with hard stools, insoluble fiber for patients with loose stools, or regular toileting (2). Consideration should be given for the use of a footstool to enhance defecation, which has little if any risk, although studies are needed to evaluate this technique. Patients should be advised to consume meals of 500 Kcal or more to induce the gastrocolonic response, to heed the call to defecate, and to avoid straining and spending excessive time during defecation. Anorectal conditions (e.g., anal fissure or symptomatic hemorrhoids) should be treated concurrently.

If these measures are insufficient, oral osmotic or stimulant laxatives, secretory agents, or serotonin 5HT₄ agonists may be considered (2). Administered on an as-needed basis (e.g., if patients do not have a bowel movement for 2 days), enemas and suppositories provide some predictability over bowel habits. In contrast to biofeedback therapy, pelvic floor therapy does not provide feedback from pelvic floor muscles, is not specific for disorders of defecation, and is not effective for managing DD.

Anorectal biofeedback therapy. The aim is to improve symptoms by teaching patients to appropriately coordinate abdominal and pelvic floor muscles during defecation. Through 1 or more techniques (ARM, abdominal and anal EMG, assessment of rectal sensation, and ability to expel a rectal balloon), patients

Table 2. Summary of treatment recommendations for DD

1	We recommend that instrumented anorectal biofeedback therapy should be used to manage symptoms in DD (strong recommendation; minimal risk of harm; quality of evidence: moderate). Consensus score: 29
2	We suggest that full-thickness rectal prolapse often requires surgical treatment with abdominal rectopexy or in selected cases a perineal procedure (conditional recommendation; moderate risk of harm; quality of evidence: very low). Consensus score: 30

DD, defecation disorder.