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**Introduction:** Childhood Constipation: 5% of pediatrician visits, 25% gastroenterology visits. Patients w/ dyssynergic constipation have poor relaxation of pelvic floor muscles coupled with insufficient abdominal pressure thrust, which make it difficult to pass stool. Retained stool increases burden on rectum leading to painful straining and overflow fecal incontinence. Anorectal manometry (ARM) and more recently 3D ARM detect anal canal pressure relaxation patterns using pressure sensors. Current management: medication (laxatives and stimulants), dietary interventions, behavioral modification, scheduled toilet sitting and perform Valsalva/blowing a balloon while defecating. Biofeedback and PFPT have been shown to be effective with adults. Studies from 20 years ago showed that biofeedback and PFPT showed no difference between laxatives and biofeedback/PFPT. External sensors are used with children currently.

**Aim/Primary Aim:** To assess benefit of Pelvic Floor Physical Therapy (PFPT) in pediatric patients with chronic constipation with dyssynergic defecation.

**Study Design/Study Format:** Retrospective chart study

**Methods:** 69 children determined by anorectal manometry and balloon expulsion testing. 49 patients in PFPT, 20 control received medical (laxatives/stool softeners). 15 month chart review, age 5-18 years, chronic constipation using ROME III criteria, medication dependent or unresponsive to medical interventions, symptoms > 3 months. ARM was used to determine resting and squeeze pressure. Balloon expulsion catheter was inserted and insufflated to 60 ml, child had to expel into toilet within 1 min. Diagnosed based on: 1. Inability to relax anal canal when bearing down 2. Insufficient increase in rectal pressure and 3. Inability to pass balloon into commode. Hypersensitive <25mL, Hyposensitive >80 mL - initial sensing. Treatment groups: at least 3 PT sessions and medical treatment only, both at least 3 months medication. Initial: PT and Bio: motor control, strength and endurance - muscles involved in defecation: diaphragm, TrA and PFM. Follow up visits (3-8 visits bi/weekly): correctly engage diaphragm, maximize TrA strength and endurance, isolation of PFM, (occasional use of surface EMG), assessed for DRA (low muscle tone). Toilet mechanics: engage TrA while elongating PF. PT Outcomes: decreased straining, decreased FI, reduction in medication.
Control: gastroenterologist’s reports
Additional outcomes: hospitalization/stool cleanouts, surgical interventions: cecostomy, appendicostomy, colectomy
Pt characteristics: anxiety, autism, learning disorders

**Results:** 76% of PFPT group had improvement in constipation symptoms, 25% of control had improvement. PFPT: fewer hospitalizations/cleanouts, less colonic surgery. Those with anxiety and low muscle tone had best response to PFPT. PFPT group: 76% responded, less hospitalization, surgery. Those w/ anxiety and DRA had 100% response rate. About 50% of those with autism and learning disorders. 24% had worsening symptoms, 20% of those were no longer completing PT exercises
Non-PFPT: 25% had response

**Discussion and Clinical Application:**

Treatment emphasis on relaxation of pelvic floor muscles and increased abdominal muscle force and the coordination of the two.

Four randomized controlled long term studies on effect of non uniform biofeedback with heterogenous protocols in pediatric making it difficult to interpret together. Van der Plas et al. showed no difference between laxatives and biofeedback after 2 years. Loening showed initial response to biofeedback but convergence with medical group over time. A Cochrane review showed insufficient evidence. The ANMS-EMS concludes that biofeedback is beneficial to adults but in pediatrics there is no added benefit and is not recommended. None of these looked at PFPT.

There has been much advancement in PFPT since these articles have been published.

Several prior studies with biofeedback alone showed initial improvement which was lost over time. This could be because the child returns to the same environment or behavior that caused the defecation disorder in the first place. Patients may benefit from follow up sessions to reinforce good habits.

There isn’t any research comparing dyssynergic defecation in healthy children to those with bowel symptoms.

What the physician or therapist wrote in chart may not match what the family believed. Skill of therapist or motivation of patient could affect outcomes.

31% of adults w/ constipation had childhood constipation - benefit of treating earlier

**Strengths:** 69 patients, clinical, followed for a while

**Weaknesses:** Does not clearly explain what they mean by biofeedback or how they evaluated motor control, strength and endurance. Did not use an outcome measure. Do not know how many remain well after 1 one year.

**Conclusion/Summary:** PFPT is safe and effective treatment for dyssynergic defecation constipation, especially those with anxiety and low muscle tone.
Discussion questions:

What type of biofeedback are they using?

What do they mean by PFPT? Who is administering the therapy? Was it a PT?

How specific is surface EMG?

Do we want to strengthen the abdominal wall in constipated patients?

Why did they use Rome III criteria when we have Rome IV criteria?

Other References:

https://dianeleephysio.com/education/diastasis-rectus-abdominis-postpartum-health/

https://www.youtube.com/watch?v=QDk93cvZAuk