Pelvic Physical Therapy Distance Journal Club
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Diagnostic value of the balloon expulsion test compared with anorectal manometry in Indian patients with dyssynergic defecation. Jain M, Singh S, Baijal R. Gastroenterology Rev 2020;15(2):151-155. Doi:10.5114/pg2020.95558.

Background
There is no consensus on technique of balloon expulsion testing

- air filled - water filled (most used water filling) - volumes vary from 10-60 ml
- lying down - seated (most used seated)
- less than 1 min - up to 5 minutes (ICS terms say balloon should be expelled in less than 1 minutes to be normal, Sultan 2016).

Study design - retrospective analysis
Patient population - 1006 adult patients with chronic constipation, 73% male
Evaluation

- Clinical history: digitations, straining, incomplete evacuation, bleeding per rectum
- Bristol stool form
- Clinical classification
    - IBS-C - increased visceral hypersensitivity
    - Functional constipation (FC) - more common rectal hyposensitivity
- Digital rectal exam
- Sigmoidoscopy or colonoscopy

Anorectal manometry (ARM)

- anorectal resting pressure - 60 sec
- squeeze pressure 3x max 20 seconds
- rectoanal inhibitory reflex - present if resting anal sphincter pressure decreases with rectal balloon inflation
- rectal sensations - progressively increasing balloon size from 10 to 400 ml
    - first sensation
    - urge to defecate
    - max tolerance

Rectal hyposensitivity

- max tolerable greater than 240 ml
- first sensation greater than 25 ml
- desire to defecate more than 150 ml
- urgency to defecate greater than 200 ml

Balloon expulsion test (BET)

- inflate balloon with 50 ml of air
- ask patient to expel in left side lying
- Abnormal if unable to expel within 1 min

Dyssynergic defecation (DD) by BET

- Patients fulfilled criterion for FC and or IBS-C by Rome 3 (see second article)
- dyssyenergic defecation (types 1-4)
    - less than 20% relaxation of resting anal pressure on bearing down
    - paradoxical increase in anal sphincter pressure
    - inadequate propulsion of rectal canal

Digital rectal examine (DRE)

- palpation for tenderness, mass, stool
- resting anal tone
- squeeze assessment 30 seconds
- Bearing down test - one hand on abdomen

Dyssynergic defecation (DD) by DRE - two of the following

- inability to contract the abdominals
- inability to relax anal sphincter
- paradoxical anal contraction
- absence of perineal descent

<u>Results</u>

Sensitivity - designates who has the condition (may not be as helpful)
Specificity - ability of a test to tell who does not have the condition (best for screening)

Positive predictive value - probability that a patient with a positive test actually has the condition
Negative predictive value - probability that a patient with a negative test truly does not have the condition

30.2% have DD

- 97% type 1
- 2.3% type 2
- 0.3% type 3 and 4

99.8% have intact rectoanal inhibitory reflex
62.1% have rectal hyposensitivity

Patients with abnormal BET more frequency

- report digitations
- bleeding per rectum
- straining
- higher basal pressure at rest
- more commonly have DD

	BET detecting DD	BET and DRE detecting DD	DRE detecting DD *
Sensitivity	28.29%	57.63%	69.7%
Specificity	97.15%	88.79%	81.5%
Positive predictive value	81.13%	73.91%	82.1%
Negative predictive value	75.78%	79.17%	68.75%

* results of a separate study by the same authors

Ref 24 - biofeedback improves symptoms and BET in 60% of cases

<u>Limitations</u>
referral bias
all tests of anorectal function are imperfect simulations

IUGA / ICS joint report on the terminology for female anorectal dysfunction. Sultan AH, et al. Neurourol and Urodynam. 2016

Discussion questions
1. How do you diagnose DD? symptoms, signs investigations
2. Parameters for balloon expulsion test? Do you think it is within the scope of PT?
3. Do you see results of anorecal manometry or defacography?