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### **Anorectal Manometry in Spinal Cord Injured Patients: focusing on cough reflex.**

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#### **Objective**

Spinal cord injury (SCI) patients have anorectal dysfunction resulting in constipation and fecal incontinence. In this study, we aimed to analyze anorectal manometry parameters, especially cough reflex, according to the presence or absence of incontinence and constipation, spinal cord injury levels in SCI patients (cough reflex is involuntary parameter).

#### **Method**

Anorectal manometry was performed on 38 SCI patients who had no anal or colonic disease before the injury. Pressure measurements used the rapid pull-through (RPT) method, and volume measurements used a balloon-tipped catheter. Five pressure indices (resting tone, maximal pressure, mean pressure, squeezing pressure, cough reflex), two sphincter length indices (length of anal canal, high pressure zone length), and one volume index (rectoanal inhibitory reflex) were analyzed. Then, these parameters were compared with spinal cord injury levels and international bowel function spinal cord injury data set.

#### **Results**

Resting tone and squeezing pressure were lower than normal values in SCI patients. Parameters of anorectal manometry in SCI patients were not associated with incontinence, constipation and spinal cord levels. However, squeezing pressure was higher in incomplete SCI than in complete SCI ( $p=0.005$ ). Cough reflex amplitude was higher in incomplete SCI than in complete SCI ( $p=0.017$ ) and also higher in injuries above T7 than below T7 ( $p=0.020$ ) by Mann-Whitney test. Squeezing pressure was moderately correlated with cough reflex amplitude (Spearman correlation-coefficient 0.501,  $p=0.001$ ).

#### **Conclusion**

SCI patients have abnormal parameters on anorectal manometry. There was no significant relationship between patient's symptoms (constipation or incontinence) and anorectal manometry parameter. However, there was moderate correlation between cough reflex amplitude and squeezing pressure. We conclude that squeezing pressure (voluntary parameter) could be presumably predicted by cough reflex amplitude (involuntary parameter).