Nasogastric tube as abdominal pressure sensor in urodynamics-Proof of concept of a novel approach

Abstract

Aims: The standard sensor for abdominal pressure (Pabd) measurement in urodynamics (UD) is a rectal sensor. In patients where the rectum is not available due to prior surgery or when external anal sphincter (EAS) tone is poor, rectal sensor may slip, making Pabd recording unreliable. Vaginal Pabd measurement and wireless vaginal sensors have been tried. We present our preliminary series of a novel nasogastric tube (NG) sensor for Pabd measurement.

Methods: We identified patients undergoing UD with a NG Pabd sensor from a prospectively maintained UD database of a tertiary care urological center between July 2013 and December 2016.

Results: Out of 1325 urodynamic procedures done, 46 (3.5%) were performed using NG Pabd sensor. The median (IQR) age was 44 (12) years. Indications for UD in these patients were neurogenic bladder in 22 (47.8%), urinary retention in 17 (37%), post-meningomyelocele repair in four (8.7%), traumatic paraplegia in two (4.3%), and cervical myelopathy in one (2.2%). The indications for NG Pabd sensor were lax EAS tone (40; 86.9%), post-abdominoperineal resection (2; 4.3%), and painful thrombosed hemorrhoids (4; 8.7%). It was possible to make definitive urodynamic diagnosis in all patients using NG Pabd sensor. Initial calibration and NG Pabd excursions throughout the study were similar to that of rectal Pabd sensor. There were no problems with NG tube tolerance.

Conclusion: Use of nasogastric sensor is feasible, accurate, cost-effective, and viable alternative for Pabd measurement in patients with poor anal tone or absent rectum due to postoperative status.