Study of intestinal flow by combined videofluoroscopy, manometry, and multiple intraluminal impedance.

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Abstract:

Study of intestinal flow by combined videofluoroscopy, manometry, and multiple intraluminal impedance. Am J Physiol Gastrointest Liver Physiol 286: G263–G270, 2004. First published September 25, 2003; 10.1152/ajpgi.00228.2003. Assessment of patterns of flow in the small bowel is difficult. Multiple intraluminal impedance has been recently used for study of flow dynamics in the esophagus. Our aims were 1) to validate multiple intraluminal impedance by correlating impedance events with intestinal flow as detected by fluoroscopy and 2) to determine intestinal flow patterns in the fasting and postprandial period and their correspondence with manometry. First, six healthy subjects underwent simultaneous video-fluoroscopic, manometric, and impedance recording from the duode num. Videofluoroscopy was used to validate impedance patterns corresponding with barium flow in the fasting and postprandial periods. Next, 16 healthy subjects underwent prolonged simultaneous recording of impedance and manometry in both periods. Most flow events were short (10 cm or less), with antegrade flow being the most common. Correspondence between impedance and videofluoroscopy increased with increasing length of barium flow. Impedance corresponded better with flow, at any distance, than manometry. However, impedance and manometric events, when analyzed separately as index events, always corresponded with fluoroscopic flow. The fasting and postprandial periods showed comparable patterns of flow, with frequent, highly propulsive manometric and impedance sequences. Motility index was positively and significantly associated with length of impedance events. Phase 3 of the migrating motor complex could be easily recognized by impedance. Multiple intraluminal impedance can detect intestinal flow events and corresponds better with fluoroscopic flow than manometry.

Keywords:

multichannel intraluminal impedance; manometry; fluoroscopy; intestinal motility

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