

Using Intra-gastric Meal Distribution and Antral Contractility for Enhanced Gastric Emptying Analysis

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See the associated article on page 138.

In this issue of *Journal of Nuclear Medicine Technology*, Orthey et al. (1) investigate the dynamic relationship of the fundal reservoir and the antral pump in solid-meal gastric physiology in 20 healthy volunteers. Special attention was focused on dynamic antral contraction scintigraphy (DACS). Interestingly, “For the DACS imaging, each subject was allowed to choose whether an upright standing or seated position was most comfortable and then instructed to remain as still as possible in that position for the 20 min of DACS imaging.” No further comment on any potential differences in upright versus supine gastric emptying were presented, despite the obvious gravitational advantage of the upright position for fundal emptying, given that the authors were interested in isolated antral function.

Antral contractions may of course be directly visualized nonquantitatively via fluoroscopy with nonphysiologic barium suspensions or iodinated contrast agents, and elastogastrography may be used for antral frequency analysis (2). Because the normal antrum contracts at about 3 cycles per minute during gastric emptying, antral frequency analysis cannot be determined by routine 1-image-per-minute solid gastric-emptying examinations.

On the other hand, for this gastric-emptying study, antral contractions were monitored at the relatively rapid rate of 1 image per 3 s (3–5), and thus, the acquired data time resolution far exceeded the standard 1-image-per-minute acquisition rate typically used. This rapid, dynamic data collection was

then frequency-analyzed using fast Fourier techniques to identify a relatively novel physiologically determined gastric antral region of interest, as compared with the more usually selected arbitrary anatomic mid-stomach fundal–antral border.

The onset and frequency of antral contractions could then be identified and measured, and a normal database created. Authors speculate on the potential clinical benefits of dynamic antral contraction analysis as compared with routine gastric-emptying examinations. Perhaps in the future we will collect and manage gastric-emptying data in a manner similar to first-pass radionuclide angiography, with antral ejection fraction and phase analysis and reporting. We should look forward to the results of future clinical trials targeting the application of antral function analysis to outcomes in patients with dyspepsia.

DISCLOSURE

No potential conflict of interest relevant to this article was reported.

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