

Provision of facilities for manometry and pH monitoring in the investigation of patients with oesophageal disease

A Watson, M Atkinson

New technology for oesophageal manometry and ambulatory pH monitoring has increased our understanding of oesophageal pathophysiology and placed the investigation and management of disorders of the oesophagus on a more firm scientific footing. The case for oesophageal manometry and pH monitoring in the evaluation of disorders of oesophageal function have been summarised by Castell and Johnson.¹ The principal applications of these tests are in the investigation of patients with typical symptoms of oesophageal disease such as heartburn and dysphagia in whom standard radiological and endoscopic investigations are normal, and those with atypical symptoms of oesophageal disease such as chest pain and respiratory symptoms in whom cardiological or respiratory assessment fails to identify the cause.² Oesophageal manometry is the only investigation that enables accurate diagnosis and categorisation of motility disorders, whether primary or secondary to gastro-oesophageal reflux or systemic disease. Manometry and pH monitoring are essential for the investigation and management of complex oesophageal problems, including gastro-oesophageal reflux, motility disorders, gastric hypersecretion, and duodenogastric reflux and where oesophageal problems persist after previous endoscopic or surgical treatment. Many would advocate their use in the assessment of reflux patients who do not respond to standard conservative treatment, particularly before anti-reflux surgery is considered.

Current availability of facilities for oesophageal manometry and pH monitoring

A recent survey conducted by the Oesophageal Section of the British Society of Gastroenterology has shown that only 26% of respondents routinely perform oesophageal manometry and 37% pH monitoring; 42% of respondents refer patients to other hospitals for oesophageal manometry. The majority indicated that they would perform these if facilities were available.

Of those centres performing manometry and pH monitoring, over half perform fewer than 10 examinations per month, the principal constraint being lack of appropriate technical support. Fifty two per cent of those regularly performing manometry and pH monitoring do not have technical support, the investigations being conducted by research fellows, junior Health Service staff, consultants, and nursing staff. In centres where technical support exists, funding is by the NHS in 41%, the remainder being funded through research grants or from industry.

Despite the increasing demand for oesophageal manometry and pH monitoring, the survey showed that only six centres in the United Kingdom were equipped and supported by appropriate technical staff to perform more than 20 examinations a month. These centres all had long waiting lists to investigate patients (range 6-10 weeks).

Projected needs for oesophageal manometry and pH monitoring

A recent population based study³ has shown a prevalence of dyspeptic symptoms in the community of 38%, many of whom have typical symptoms of gastro-oesophageal reflux. A recent review of endoscopic practice in two large district hospitals⁴ has shown that oesophagitis is the most frequent endoscopic diagnosis, comprising 23% of all new endoscopic examinations.

Based on these figures, an average district general hospital covering a population of 200 000 would perform approximately 2000 endoscopies a year, of which approximately 1300 would be in new patients. The yield of patients with oesophagitis would be approximately 300. Experienced units report that approximately 30% of patients with severe gastro-oesophageal reflux do not have oesophagitis. All of these patients would ideally require manometry and pH monitoring.

Indications for these studies in patients with documented endoscopic oesophagitis varies among centres depending on management policies, but it seems likely that one third of patients with endoscopic oesophagitis should undergo manometry and pH monitoring. In addition, approximately 50 patients a year will require investigation of suspected motility disorders or non-cardiac chest pain and 10 patients with complex oesophageal problems. There is therefore a requirement for 260 studies a year per district of 200 000 population. A fully equipped oesophageal laboratory staffed by a whole time physiological measurement technician who has been appropriately trained can deal with some 500 investigations a year. It would, therefore, be reasonable to propose that such a service should be provided between two adjacent districts, as has been proposed for endoscopic retrograde cholangiopancreatography, in order to achieve optimal provision as economically as possible.

Should every district have facilities for pH monitoring? While oesophageal manometry is relatively expensive in terms of capital costs and is labour intensive, many studies have now shown that this is the only reliable means of accurately placing a pH probe⁵ and the provision of manometric facilities results in an improved

For the Oesophageal
Section of the British
Society of
Gastroenterology
A Watson
M Atkinson

Correspondence to:
Professor M Atkinson, Far
Well, Mill Side, Witherslack,
Cumbria LA11 6SG.

Accepted for publication
19 March 1990

diagnostic yield of 29% of motility disorders.⁶ It therefore seems appropriate that manometric and pH facilities should be provided together and the degree of provision suggested above should be adequate.

Technical support

It is important that centres providing a service for the diagnosis of oesophageal disease are supported by appropriately qualified technicians. The provision described above would require one whole time equivalent physiological measurement technician per centre. There are, however, plans to incorporate more detailed gastrointestinal training into the syllabus for physiological measurement technicians, and an increased provision may be required in those centres which also provide facilities for other gastrointestinal investigations such as anorectal manometry, secretion, and absorption studies.

Resource implications

The capital costs to provide for oesophageal manometry, 24 hour ambulatory pH monitoring with two recorders, and combined ambulatory motility and pH monitoring is of the order of £45 000. Revenue costs would include the provision of a senior physiological measurement technician (current salary £9500 plus 25% employers costs); maintenance contract on the equipment; depreciation, repairs, and renewals at 25% of cost (approximately £11 000 per year); and provision of catheters (approximately £7500 per year).

The Oesophageal Section committee believe that oesophageal function studies should be performed along with other gastrointestinal

investigations in, or adjacent to, the endoscopy unit. This view has the support of the BSG working party investigating the future provision of endoscopy and related gastroenterological services.

Conclusions

(1) Oesophageal manometry and pH monitoring are essential for the appropriate investigation of patients with suspected oesophageal disease.

(2) Financial provision must be made for the purchase and maintenance of equipment necessary to the rational investigation of oesophageal disease.

(3) Technical support is necessary to conduct these investigations. Gastroenterology should be integrated into the training programme of physiological measurement technicians.

(4) Future provision should be made for oesophageal investigations along with other gastrointestinal investigations to be performed in or adjacent to endoscopy units.

(5) Facilities for oesophageal investigation, together with technical support, should be provided in units serving two adjacent districts each of approximately 200 000 population.

1 Castell DO, Johnson LF. *Oesophageal function in health and disease*. New York: Elsevier, 1983.

2 Atkinson M. Monitoring oesophageal pH. *Gut* 1987; 28: 509-14.

3 Jones R, Lydeard S. Prevalence of symptoms of dyspepsia in the community. *Br Med J* 1989; 298: 30-2.

4 Stoker DL, Williams JG, Leicester RJ, Colin-Jones DG. Oesophagitis - a five year review. *Gut* 1988; 29: A1450.

5 Stoker DL, Williams JG, Colin-Jones DG. Comparison of the acid/alkaline junction with the manometrically determined lower oesophageal sphincter (LOS). *Gut* 1988; 29: A1450.

6 Owen WJ, McCullagh M, Anggiansah A. What are the benefits of an oesophageal laboratory. *Gut* 1989; 30: A730.