Use of ambulatory oesophageal pH monitoring to diagnose gastro-oesophageal reflux disease

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Abstract

Objectives To investigate the characteristics of patients referred for ambulatory oesophageal pHmetry, the referral pattern, and the role of oesophageal pHmetry as a diagnostic tool in a tertiary care hospital in Sri Lanka.

Design Data obtained from patients referred to the Gastrointestinal Research Laboratory at Teaching Hospital Ragama for 24-hour ambulatory oesophageal pHmetry from 1998 to 2005 were reviewed. Patients' upper gastrointestinal endoscopy reports and stationary oesophageal manometry reports were also reviewed.

Results 140 pHmetry studies were performed during the study period. The majority of patients (>90%) were referred by specialists in gastroenterology practicing in hospitals in or around Colombo. There were 88 males and the median age was 37 years (range 0.5-74). The median duration of symptoms was 4.1 years (range 0.2 - 25). Typical symptoms of gastro-oesophageal reflux disease (GORD) were present in 53 (38%) patients, atypical symptoms of GORD in 31 (22%), and non-specific upper gastrointestinal symptoms in 56 (40%). Pathological acid reflux was found in 43 (31%) patients. Of them, 29 (67%) had typical GORD symptoms, 7 (16%) had atypical symptoms, and 7 (16%) had non-specific upper gastrointestinal symptoms. No significant association was found between endoscopy and pHmetry results.

Conclusion Oesophageal pH monitoring helped to establish a cause for the morbidity in a significant number of patients with GORD symptoms, but not in the majority of patients referred for the test. In our experience the investigation does not seem to be optimally used as a diagnostic tool.

Introduction

In the last few decades oesophageal pH monitoring has progressed from a physiological research tool to a routine outpatient clinical investigation in patients with suspected GORD. Based on the known incidence of oesophageal disorders, the percentage of patients with negative endoscopy, and other relevant investigations, the British Society of Gastroenterology has stated that about 260 manometry and pHmetry studies are required annually for a population of 200 000 [1]. Sri Lanka has an increasing prevalence of obesity and diabetes mellitus [2]. Though the community prevalence of GORD is not

known, clinical impressions are that it is high. The country has only two laboratories capable of performing oesophageal pHmetry. Both mainly serve the districts of Colombo and Gampaha with a combined population of about 4.3 million [3]. Our study was aimed to investigate the characteristics of patients referred for pHmetry, the referral pattern, and the role of 24-hour ambulatory pHmetry as a diagnostic tool in a Sri Lankan setting.

Methods

For patients referred for pHmetry to the Gastrointestinal Research Laboratory of the Faculty of Medicine, University of Kelaniya, Ragama, demographic and clinical data were recorded using a structured data sheet.

All patients underwent stationary oesophageal manometry before pHmetry to identify the location of the lower oesophageal sphincter (LOS), and to exclude the presence of oesophageal motility disorders. After an overnight fast, oesophageal pHmetry was performed as previously described [4,5,6,7]. An antimony pH sensor with an external reference electrode was used with a portable pH meter (Microdigitrapper 8MB, Synectics Medicals Inc. Sweden) for data recording. Recorded data were analysed and standard reflux parameters were calculated by computer using Multigram software program (Multigram software, version 6.30, Synectics Medicals Inc. Sweden) [6,7,8].

Ambulatory pHmetry data obtained from healthy asymptomatic Sri Lankan controls were used for comparison with patient data [9]. Abnormal acid reflux was considered to be present if; a) the overall score (DeMeester score) was > 13.8* or b) the total percent time pH < 4 was 3.9 (95th percentile of normal Sri Lankan values) [8]. A symptom index of 50% or more was taken as being clinically significant [6,7,8].

Results

140 oesophageal pHmetry studies had been performed in our laboratory during the study period. The majority of patients (128) were referred by specialists in gastroenterology practicing in hospitals in and around Colombo. There were 88 males and the median age was 37

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Table. Analysis of referrals for pHmetry

Presenting symptoms (number of patients)	Endoscopy findings number (%)		Poor response to treatment number (%)	No reason given for the referral number (%)	pHmetry reflux positive number (%)
	+ve	-ve			
Typical GORD (53)	40 (80%)	10 (20%)	48 (91%)	16 (30%)	29 (55%)
Atypical symptoms (31)	-	-	31 (100%)	5 (16%)	7 (23%)
Non specific GI symptoms (56)	26 (49%)	27 (51%)	52 (93%)	46 (82%)	7 (13%)

+ve - oesophagitis present, -ve - no oesophagitis

years (range 0.5-74). The median duration of symptoms was 4.1 years (range 0.2-25). The majority (64%) of adults claimed that their symptoms were severe enough to affect their normal life style.

Typical symptoms of GORD (heartburn and acid regurgitation) were present in 53 (38%) (table). 126 (90%) had shown poor response to therapy, and 81 patients (58%) had taken treatment from more than one doctor for the same ailment. About half of them had no proper previous treatment records.

Atypical symptoms of GORD (eg. non-cardiac chest pain, unexplained chronic cough, recurrent lower respiratory tract infections and laryngeal symptoms) were present in 31(22%) patients. Non-specific upper gastrointestinal symptoms (eg. abdominal pain or discomfort, bloating, nausea, vomiting, early satiety) were the predominant symptoms in 56 (40%). The referring clinician had not given a reason or justification for requesting pHmetry in more than 80% (table).

By ambulatory pHmetry, pathological acid reflux was detected in 43 (31%) patients. Three patients had a symptom index of >50% with normal oesophageal acid exposure. However, only 17% of the patients had correctly indicated the exact timing of their symptoms to calculate the symptom index. Pathological acid reflux was detected in 29 (55%) patients who presented with typical GORD symptoms, 7 (22.5%) with atypical symptoms, and 7 (12.5%) with non-specific upper gastrointestinal symptoms.

Upper endoscopy reports were available in 103 (94%) patients with typical GORD symptoms and non-specific upper gastrointestinal symptoms. Analysis showed no significant association between endoscopy findings (presence of oesophagitis) and pHmetry findings (table). Though 66 (64%) patients had lower end oesophagitis on endoscopy, pathological acid reflux was reported in only 24 (36%) of them. Half the patients with grade 2 oesophagitis had pathological acid reflux, but the association was not statistically significant.

Discussion

Ambulatory oesophageal pH monitoring established the diagnosis of GORD in a significant number of patients presenting with typical symptoms. But pHmetry established a cause for morbidity in less than a quarter of the patients with atypical symptoms. Most patients referred for pHmetry had non-specific upper gastrointestinal symptoms, and the investigation was not useful in the great majority of them. Ambulatory pHmetry is recommended when patients with established GORD respond poorly to optimum medical therapy, to investigate patients who are sufficiently symptomatic but in whom endoscopy is negative and respond poorly to therapy, and to investigate the possibility of pathological reflux in patients with atypical symptoms (eg. angina like chest pain, wheezing) [10, 11].

The majority of our patients were referred to us for pHmetry by specialist gastroenterologists. Even so, patient selection seems to have been arbitrary in most cases. The facility is hardly being used by cardiologists, respiratory physicians, ENT surgeons and paediatricians. Although oesophageal pH monitoring has been available in Sri Lanka since 1998, it is not optimally used.

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