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Gastro-oesophageal reflux disease

Impact of guidelines on GP management

Background

This program examined the impact of clinical guidelines and a 3 year self audit process on general practitioners' diagnosis and management of gastro-oesophageal reflux disease.

Methods

Nine hundred and sixty-six Australian GPs participated in a retrospective five step clinical audit reporting on data for 28 622 patients.

Results

General practitioners demonstrated significant improvements in their diagnosis and management of gastro-oesophageal reflux disease across the audit period, including:

- a significant 3% decrease in use of endoscopy
- improved GP assessment and identification of risk factors and exacerbants
- significant increases in GP recommendations for patient weight loss and dietary change (7 and 10% respectively)
- a significant 4% reduction in patient use of medications that may exacerbate reflux symptoms.

Discussion

The findings provide a snapshot of current diagnostic and management practices in Australian general practice, and highlight the benefits of clinical audit as a tool for eliciting evidence based, guideline driven practice change.

■ **Gastro-oesophageal reflux disease (GORD) is a highly prevalent condition characterised by regular and frequent 'heartburn' and/or acid regurgitation.¹ A recent epidemiological review has indicated that the prevalence of GORD in the western world is 10–20%.¹ Gastro-oesophageal reflux disease is frequently managed in Australian general practice.²**

In 2001 the Gastroenterological Society of Australia (GESA) released GORD management guidelines, which promoted history taking as the most useful method of diagnosis.³ They also recommended the use of once daily proton pump inhibitor (PPI) as initial therapy, on the basis that this provides high rates of symptom control and therefore provides useful diagnostic confirmation and usually prompt achievement of therapeutic aims. Just before this guideline release, PPIs were prescribed for approximately 18% of patients with gastric reflux.⁴ Other data from 2000 and 2001 indicates that 78% of patients with GORD were managing the disease with medication, including H₂ receptor antagonists (54%) and PPIs (29%).⁵

The implementation of clinical guidelines produced by authoritative bodies in clinical practice remains challenging, and is the focus of activity for the National Institute of Clinical Studies in Australia and the National Institute of Clinical Excellence in the United Kingdom.^{6–7}

Given the essential role of GPs in the detection and management of GORD, we explored ways to promote GP awareness and implementation of the evidence based GESA guidelines.

A second objective of this program was to examine the effectiveness of a five step clinical audit and feedback process in eliciting evidence based practice change in GP management of a high prevalence condition.

Methods

The initial clinical audit was offered to GPs nationally over an 18 month period from mid 2003. However, given the uptake and success of the audit, the audit was offered to GPs in February 2005, in

conjunction with a related Reflux Nurse Review (RnR) program. The program was completed mid 2006. These two phases of the audit are referred to as 'round 1' and 'round 2' respectively.

The clinical audit was developed over several stages, using input from a GORD working group and two focus groups with rural and metropolitan GPs, a comprehensive review of current guidelines and literature, and final piloting.

The audit comprised five steps: pre-audit questionnaire; part 1 audit sheets; reflection, education and practice change; part 2 audit sheets; and a final GP reflection on the activity. These steps enabled measurement of GPs' clinical practices before commencing the audit (part 1), and any changes in clinical practice that occurred as a result of the audit and education process (part 2).

The pre-audit questionnaire comprised four questions regarding GPs' motivations for participating in the audit, personal learning goals, current treatment of GORD, and awareness of the GESA guidelines.

The part 1 audit sheets sought information about GPs' past management of 20 patients aged 18 years and over who were currently being treated for GORD. General practitioners were instructed to search for and randomly select these patients from their records. Information required for each patient included methods of diagnosis, assessment and identification of GORD risk factors and exacerbants, and methods of treatment.

General practitioners were provided with a one page summary report containing their part 1 results and deidentified comparative data on their colleagues' practices. Included with this report were a GP reflection survey and a copy of the GESA guidelines. The GP reflection survey comprised seven questions regarding GPs' thoughts on their audit results, how they compared to the guidelines and areas for practice improvement.

The part 2 audit sheets sought identical information to that obtained from the part 1 sheets. Patients audited in part 2 were not necessarily the same as those audited in part 1; however, given that GPs were asked to randomly select patients seen within the past 6 months, there may have been some overlap.

A summary report again provided GPs with their part 1 and 2 audit results and comparative data on their colleagues' practices. Included with this report was a second GP reflection survey. The survey comprised 12 questions regarding GPs' thoughts on their results, practice changes over the audit period, areas for further improvement and evaluation of the audit.

Descriptive results were obtained to examine baseline clinical practices for all GPs who participated in the clinical audit. Given that the methodology was identical and there were no major circumstances or divergent results between audit rounds 1 and 2, data from both rounds were combined for analysis. Paired sample (two way) t-tests were then performed to compare part 1 and 2 audit results for GPs who completed the full audit to examine any practice changes that occurred as a result of audit participation. An estimated sample of 68 GPs was required to detect a moderate effect size (0.4, $\alpha = 0.05$, with a power of 0.9 for correlated t-tests).

The project was approved by the Monash University Standing Committee on Ethics in Research Involving Humans (reference number 2005/227).

Results

Nine hundred and sixty-six GPs across Australia participated in the first part of the audit and 467 completed the full audit process (52% attrition rate) (*Table 1*). General practitioners provided data on their management of GORD for 28 622 patients.

Descriptive results from all participating GPs

Table 2 presents a snapshot of GPs' diagnostic and management practices at commencement of the audit. These results show the mean proportion (%) of patient cases in which GPs undertook each GORD diagnostic and management approach.

Changes in GP practice across the audit process

Data from GPs who completed the full audit was analysed to examine practice changes that occurred as a result of their participation (*Table 3*). Given the GP attrition rates, percentages rather than frequencies are presented.

Assessment and identification of GORD risk factors

There were significant increases in GPs' assessment and recording of all audited risk factors for GORD ($p < 0.001$). The results showed significant increases in GP identification of provocative dietary habits and overweight/obesity across the audit process ($t[466]=3.82$, $p < 0.001$ and $t[466]=4.70$, $p < 0.001$ respectively). However, increased assessment of GORD associated drugs and alert symptoms from audit parts 1 to 2 did not result in increased identification of the presence of these GORD risk factors ($p > 0.05$).

Diagnosis of GORD

There was a significant 3% reduction in GP use of endoscopy from audit parts 1 to 2 ($t[466]=2.95$, $p = 0.003$). There was no significant change in GP use of Barium swallows ($p > 0.05$).

There were significant increases in the assessment and identification of heartburn and regurgitation across the audit period ($t[466]=2.45$, $p = 0.015$ and $t[466]=4.53$, $p < 0.001$ respectively). Correspondingly, there was a significant reduction in 'other' methods of GORD diagnosis ($t[466]=2.41$, $p = 0.017$).

GORD treatment

The results showed no significant change in GP prescription of PPIs or therapeutic drug trials across the audit period ($p > 0.05$). There was, however, a nonsignificant trend toward increased PPI prescription (1.6%), representing approximately 300 patients.

General practitioners reported a significant 4% reduction in H_2 antagonist prescription ($t[466]=5.60$, $p < 0.001$), while GP recommendations for antacids remained stable at 6% across the audit period ($p > 0.05$). General practitioners also demonstrated increased

Table 1. Breakdown of GP participation and patient data

Participation	Round 1		Round 2	
	Audit part 1	Audit part 2	Audit part 1	Audit part 2
GPs (n)	742	348	224	119
Patients (n)	14 761	7008	4458	2395

recommendations for patient lifestyle modification. There were significant increases in GP recommendations for weight loss (6.8%) and dietary change (9.7%) from audit parts 1 to 2 ($t[466]=7.15$, $p<0.001$ and ($t[466]=7.21$, $p<0.001$ respectively).

The results also indicated a 3.9% increase in cases in which GPs reduced or ceased patients' use of drugs that may exacerbate reflux induced symptoms ($t[466]=4.22$, $p<0.001$). General practitioner advice regarding posture also increased significantly ($t[466]=3.08$, $p=0.002$). Finally, there was a nonsignificant trend (1.4%) toward decreased specialist referrals ($p>0.05$).

Discussion

The GORD clinical audit was successful in both engaging GPs and prompting beneficial changes in clinical practice. There were significant and meaningful changes in participating GPs' assessment, diagnosis and management of GORD. This demonstrates that the clinical audit process, in association with promotion of evidence based guidelines, is an effective step toward positive GP practice change.

There were clear improvements in GP assessment of GORD risk factors and exacerbants. While increased assessments did not always result in increased identification of risk factors, the results indicate that GPs had become more aware of, and active in, assessing patient risk factors and potential exacerbants for GORD.

General practitioners also appeared to rely less on invasive diagnostic investigations and became more focused on assessment of symptoms related directly to reflux episodes. These changes may impact considerably on the patient, with diagnosis becoming less reliant on invasive, costly and often ineffective endoscopy as an initial investigation.

The findings also suggest that participation in the clinical audit process impacted considerably on several specific areas of GPs' treatment of GORD. General practitioners reported more frequent recommendation of patient lifestyle modifications, including weight loss and dietary change, across the audit period. These results suggest that GPs had made an effort to encourage

lifestyle modification as a means of improving patients' GORD symptoms.

The GESA guidelines also recommend PPIs as an appropriate therapy for the majority of patients displaying GORD symptoms, making it a key focal point for the clinical audit program. The rates of PPI prescription identified in this audit were considerably higher than rates from earlier Australian studies conducted from 1999 to 2001.

Table 2. Diagnostic and management practices of all participating GPs (n=966) at commencement of the audit

Parameter		% of patients
Diagnosis		
Endoscopy		46.5
Barium swallow		5.8
Heartburn		60.5
Regurgitation		26.6
Other		19.7
Risk factors, risk management and exacerbants		
Provocative eating/alcohol habits	Not recorded	33.7
	Recorded and absent	23.0
	Recorded and present	43.3
GORD associated drugs	Not recorded	22.3
	Recorded and absent	45.5
	Recorded and present	32.1
BMI >30 kg/m ²	Not recorded	33.4
	Recorded and absent	40.5
	Recorded and present	26.1
Alert symptoms	Not recorded	38.0
	Recorded and absent	46.6
	Recorded and present	15.4
Initial management		
Specialist referral		35.0
Reduce or cease GORD associated drugs		17.1
Weight loss		23.5
Therapeutic drug trial		59.6
Diet		39.5
Posture		18.9
None		5.6
Current GORD drug prescribed		
Proton pump inhibitor		78.4
H ₂ antagonist		14.6
Antacid		6.0
None		5.4

Only a small, nonsignificant increase in GPs' PPI prescription was observed across the period of this clinical audit. General practitioners' increased recommendations for lifestyle modifications showed that they were willing to adopt other initial treatments rather than simply increasing their prescription of PPIs.

General practitioners also demonstrated positive changes in other areas of their GORD treatment practices, including offering more advice about posture, and decreasing patients' use of medications that might exacerbate GORD symptoms.

It is important to note that the results must be interpreted in light of methodological limitations including reliability of self report, patient selection biases and GP attrition. To minimise these limitations, GPs were instructed to randomly select patients from their records and complete

the audit sheets using the information recorded in their patient histories. Attempts were made to minimise attrition by regularly contacting participating GPs to provide materials, feedback and reminders.

The encouraging findings from the clinical audit program highlight the impact of self audit, individualised feedback and reflection on GP management of a highly prevalent health condition. This research may also have implications for assessing the adoption of guidelines for other common conditions such as asthma, diabetes and cardiovascular disease.

Implications for general practice

- The clinical audit process can assist the implementation of clinical guidelines for high prevalence conditions in general practice.

Table 3. Diagnostic and management practices of GPs who completed the full audit (n=467)

Parameter		Audit part 1 % of patients	Audit part 2 % of patients
Diagnosis			
Endoscopy		48.0	44.9**
Barium swallow		6.4	5.6
Heartburn		60.1	63.1*
Regurgitation		27.5	32.4†
Other		18.8	16.2*
Risk factors, risk management and exacerbants			
Provocative eating/alcohol habits	Not recorded	32.3	19.0†
	Recorded and absent	24.0	32.6†
	Recorded and present	43.7	48.3†
GORD associated drugs	Not recorded	21.3	13.8†
	Recorded and absent	46.1	53.9†
	Recorded and present	32.6	32.2
BMI >30 kg/m ²	Not recorded	31.6	20.5†
	Recorded and absent	41.2	48.3†
	Recorded and present	27.2	31.2†
Alert symptoms	Not recorded	37.4	23.0†
	Recorded and absent	46.3	60.2†
	Recorded and present	16.3	16.8
Initial management			
Specialist referral		34.6	33.2
Reduce or cease GORD associated drugs		17.7	21.6†
Weight loss		24.5	31.3†
Therapeutic drug trial		60.2	60.9
Diet		40.3	50.0†
Posture		20.3	24.3**
None		5.5	3.4**
Current GORD drug prescribed			
Proton pump inhibitor		77.8	79.4
H ₂ antagonist		15.2	11.1†
Antacid		5.9	6.1
None		5.6	7.4**
* p<0.05 ** p<0.01 † p<0.001			

- Clinical audits may be a useful tool for both promoting and assessing guideline driven practice change in general practice.

Conflict of interest: AstraZeneca funded this clinical audit program but had no role in the analysis of results and preparation of this article. John Dent receives funding for basic research into reflux disease from AstraZeneca and also provides consultancy services to that company. AstraZeneca is a manufacturer of proton pump inhibitors. Catherine Andrews has conducted research that has received funding from Eli Lilly Pty Ltd and AstraZeneca. Leon Piterman has received funding for research into reflux disease from AstraZeneca. Mark Nelson has participated in trials that have received funding from SmithKline Beecham, AstraZeneca, Bayer, Sanofi-Aventis, Merck Sharpe and Dohme, Pfizer, Servier Laboratories and Bristol-Myers Squibb. He has served on an advisory board for Sanofi-Aventis. He has prepared educational material for Servier Laboratories and Bristol-Myers Squibb. He has received travel support from Bayer AG.

Acknowledgments

The authors acknowledge AstraZeneca for its financial support of this program. The clinical audit program was supported by and offered to GPs in conjunction with AstraZeneca, Think Health Pty Ltd and ZEST Healthcare (formerly Oxford Clinical Communications Australia). The following people are acknowledged for their role in the GORD clinical audit: Mrs Annabel Whitby for managing administration of the audit, Marc Sapper of Microguild for database development and maintenance, and Wallace Long, Viv Allen, Louise Susko, Ben Fitzsimmons, Sandra Kaplan and Alexandra Holliday at Think Health Pty Ltd and ZEST Healthcare.

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