

# Can the elderly tolerate endoscopy without sedation?

**ABSTRACT**—The cardiopulmonary complications associated with gastroscopy could be reduced by giving little or no prior sedation. The ability to tolerate the procedure with and without sedation was compared in 62 elderly patients by recording responses to a questionnaire designed to evaluate the patient's own assessment of the examination. A similar percentage of sedated and unsedated patients described the procedure as mildly unpleasant (63% vs 57%;  $\chi^2 = 0.500$ ;  $p > 0.10$ ). The majority (73%) of unsedated patients did not want to be sedated for future examinations because of the inconvenience of the recovery period. Elderly patients should therefore be given the choice of undergoing the procedure without sedation. Full counselling and explanation of the procedure are however even more important to allay anxiety and apprehension if the procedure is undertaken without sedation.

Oesophago-gastro-duodenoscopy (OGD) is an established and useful investigation for upper gastrointestinal disorders. In experienced hands it is a safe procedure, with a mortality rate of about 0.01% [1]. The majority of deaths are due to cardiorespiratory complications related to sedation rather than to perforation or haemorrhage [1,2]. Patients with ischaemic heart disease, stroke, gastrointestinal bleeding and anaemia are considered to be at risk, as are the elderly. They should be given little or no sedation and carefully monitored during the procedure [3,4]. The overall feasibility and acceptance of OGD in the elderly without sedation need to be evaluated further as it could potentially increase the number of patients examined as day cases.

## Patients and method

Sixty-two patients (42 women), mean age 79 years (range 72–97), undergoing diagnostic OGD were included in the study which was approved by Bolton

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Health Authority local ethics committee. Informed written consent was obtained from all patients. Details of age, sex, medical history, clinical diagnosis, indication for OGD, endoscopic findings and results of full blood count, urea and electrolytes were recorded. Pre-existing ischaemic heart disease, obstructive airways disease and anaemia (Hb <10 g/dl) were present in 21 (34%), 7 (11%) and 16 (26%) subjects, respectively. Endoscopy was performed by the consultant author using an Olympus GIF.XQ 20 flexible gastroscope in a dedicated endoscopy suite with full support staff and resuscitation facilities. All patients had their pharynx sprayed with lignocaine prior to OGD. The examination was undertaken in the left lateral position. At baseline, during, at extubation and five minutes after OGD, blood pressure, oxygen saturation and cardiac rhythm were recorded as previously described [4].

The patients were randomised into two groups to receive either:

- sedation with intravenous midazolam (mean dose 2 mg), given as a slow injection over two minutes to produce drowsiness or slurred speech (group A); or
- no sedation prior to OGD (group B).

The two randomised groups were similar in age, sex distribution, risk factors and vital signs at baseline (Table 1).

On recovery from the procedure, and prior to transfer from the recovery ward, responses to the following questions were recorded:

- What degree of discomfort did you experience while swallowing the instrument?
- What degree of discomfort did you experience during the examination?

Choices for response to both these questions were: tolerable; mildly unpleasant; very unpleasant.

- If given the choice in the future, would you prefer to be sedated or not?

Any volunteered comments on this question were recorded.

Data on oxygen saturation and haemodynamic changes from two patients in group A who were sedated and subsequently given supplementary oxygen were excluded from analysis. However, their responses to the questionnaire were included in the analysis.



**Table 1.** Comparison of randomised groups; values are means ( $\pm$ sd) unless otherwise stated.

	Group A (sedated, n = 32)	Group B (unsedated, n = 30)
Age (years)	79 (range 72–89)	79 (72–97)
Male/female	10/22	10/20
Blood pressure (mmHg)	148 ( $\pm$ 25)/74 ( $\pm$ 18)	146 ( $\pm$ 30)/77 ( $\pm$ 17)
Pulse (bpm)	88 ( $\pm$ 16)	89 ( $\pm$ 15)
Haemoglobin (g/dl)	12.2 ( $\pm$ 2.5)	11.6 ( $\pm$ 2.7)
Blood urea (mmol/l)	8.1 ( $\pm$ 3.6)	8.1 ( $\pm$ 3.4)
Oxygen saturation (%)	93 ( $\pm$ 2)	93 ( $\pm$ 3)
Midazolam (mg)	2 (range 1.0–2.5)	
<i>Medical history</i>		
IHD/heart failure	9 (28%)	12 (40%)
COPD/asthma	3 (9%)	4 (13%)
Stroke/Parkinson's disease	1 (3%)	1 (3%)
Anaemia (Hb <10 g/dl)	7 (22%)	9 (30%)

IHD = ischaemic heart disease

COPD = chronic obstructive pulmonary disease

### Statistical analysis

Differences in continuous variables between the two groups were compared by Student's t-test, and categorical variables by  $\chi^2$  test where appropriate.

### Results

Sedation did not ameliorate the discomfort suffered by patients during intubation; 78% and 80% in groups A and B respectively found intubation mildly unpleasant (Table 2), and almost the same percentage of patients in both groups described the procedure as tolerable (16% vs 13%). No significant differences were noted in the percentage of patients in the two groups who found the examination mildly unpleasant (63% vs 57%). Surprisingly, although the majority of patients in group B described the intubation and examination as unpleasant, when given the choice of having sedation for future OGD almost three-quarters did not want to be sedated. Eighteen patients in this group gave the following reasons for their choices: five found the procedure bearable and not a problem; 10 wanted to be aware of the procedure and avoid the inconvenience of a recovery period; and three had not known about the effects of sedation. Five patients in group B who had had OGD under sedation in the past expressed a preference for sedation for any future OGD as they did not recall the procedure being as unpleasant as it was on this occasion. The main reason given by the group A patients for future preference for sedation was apprehension by 10 (48%). Eleven (52%) gave no reason, probably because of partial or total amnesia of the procedure, and five wanted no sedation

in future because of curiosity. Six group A patients did not record a preference.

### Oxygen saturation

There were no significant differences in oxygen saturation during OGD between the groups, although there was a slight transient fall in oxygen saturation in group

**Table 2.** Tolerance to oesophago-gastro-duodenoscopy; responses to questionnaire.

	Group A (sedated, n = 32)	Group B (unsedated, n = 30)
<i>Intubation</i>		
Tolerable	5 (16%)	4 (13%)
Mildly unpleasant	25 (78%)	24 (80%)
Very unpleasant	1	2
Unrecorded/don't know	1	0
<i>Examination</i>		
Tolerable	10 (31%)	12 (40%)
Mildly unpleasant	20 (63%)	17 (57%)
Very unpleasant	1	1
Unrecorded/don't know	1	0
<i>Future choice</i>		
Sedation	21 (66%)	5 (17%)
No sedation	5 (16%)	22 (73%)
Unrecorded/don't know	6 (19%)	3 (10%)



**Table 3.** Changes in oxygen saturation, heart rate and blood pressure; values are means ( $\pm$ sd).

	Group A (sedated, $n = 30$ )*	Group B (unsedated, $n = 30$ )
Oxygen saturation (%)		
Baseline	93.0 ( $\pm$ 2.4)	93.0 ( $\pm$ 3.0)
After sedation	92.8 ( $\pm$ 3.0)	
During gastroscopy	92.3 ( $\pm$ 3.5)	92.5 ( $\pm$ 3.2)
After extubation	94.0 ( $\pm$ 2.5)	93.9 ( $\pm$ 2.6)
Blood pressure (mmHg)		
Baseline	148 ( $\pm$ 25)/74 ( $\pm$ 18)	146 ( $\pm$ 30)/77 ( $\pm$ 17)
After sedation	156 ( $\pm$ 27)/86 ( $\pm$ 21)	
During gastroscopy	155 ( $\pm$ 30)/79 ( $\pm$ 26)	158 ( $\pm$ 34)/86 ( $\pm$ 19)
After extubation	144 ( $\pm$ 28)/79 ( $\pm$ 26)	153 ( $\pm$ 26)/81 ( $\pm$ 13)
Heart rate (bpm)		
Baseline	88 ( $\pm$ 16)	89 ( $\pm$ 15)
After sedation	90 ( $\pm$ 14)	
During gastroscopy	93 ( $\pm$ 16)	98 ( $\pm$ 25)
After extubation	84 ( $\pm$ 20)	86 ( $\pm$ 17)

\*Excludes two patients given supplemental oxygen.

A after sedation and during OGD, which returned to baseline after extubation (Table 3).

#### *Blood pressure, heart rate and arrhythmias*

Heart rate increased transiently in both groups during OGD, more so in group B, but the differences between the groups were not significant (Table 3). One patient in group B with a history of chronic obstructive airways disease developed transient self-terminating supraventricular tachycardia of 180 beats/min lasting for 30 seconds during antral biopsy; no treatment was required. No other serious arrhythmias were noted.

#### **Discussion**

In experienced hands, OGD without sedation is acceptable in elderly patients with or without co-existing anaemia and cardiorespiratory disorders. The examination was successful in nearly all subjects and sedation did not seem to influence tolerability. A similar study in unselected patients, mean age 57 years (range 15–85), showed that OGD without sedation was feasible without complications, although the patients' assessments of the procedure were not recorded [5]. The elderly tolerate oesophageal intubation without sedation better than younger patients during transoesophageal echocardiography [6]. With adequate counselling and explanation, the anxiety and apprehension generated prior to the procedure could be alleviated. OGD without sedation is less likely to cause

severe oxygen desaturation which is believed to precipitate cardiac ischaemia and arrhythmia [7–10].

#### **Conclusion**

Some elderly patients may not wish to be sedated during OGD and should be given the choice of undergoing the procedure without sedation. Those who are at particular risk of cardiorespiratory complications could be examined safely without sedation. Full counselling and frank explanation of the procedure are, however, even more important if the procedure is undertaken without any sedation.

#### *Acknowledgements*

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## MANAGEMENT OF STABLE ANGINA

*Edited by David de Bono and Anthony Hopkins*

Angina is the symptom affecting 2% of the population aged over 30 years and nearly 5% of men aged between 40 and 65 years. The ischaemic heart disease which it reflects, is a major cause of morbidity and mortality. It is clear that there are widespread differences in the ways in which angina is investigated and treated. To facilitate the process of audit of care in this common condition, and as a step towards the establishment of clinical guidelines, the joint audit committee of the British Cardiac Society and the Royal College of Physicians of London set up a workshop to investigate clinical guidelines and audit points in the management of stable angina.

This book reflects the outcome of the workshop. It discusses both the pathophysiology of angina and its epidemiology and describes approaches to the investigation, management and treatment of stable angina. The different papers represent a wide variety of viewpoints, from general practice through district hospitals to teaching centres. Nevertheless, the summary indicates the considerable degree of uniformity which underlies the current approach to the management of angina, and is intended to facilitate local discussion and to establish unit based guidelines and audit standards.

Purchasers of health care, both fundholding general practitioners and district health authorities, will be specifying more precisely what services they expect their patients to receive. They will find this book valuable, as will cardiologists, general practitioners and those in training who will also find in its pages useful reviews of the effectiveness of their practice.

### CONTENTS

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