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Does sedation help in fiberoptic bronchoscopy?

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Although sedation is associated with major complications^{1,2} sedative drugs are often given immediately before fiberoptic bronchoscopy in the belief that patients' comfort is improved. Uncontrolled studies have shown that fiberoptic bronchoscopy is well tolerated without sedation.^{3,4} Most comparative studies of premedication have looked at different drug regimens; we are aware of only one study that included an unsedated control arm.⁵

Opiates and benzodiazepines are frequently used for sedation during fiberoptic bronchoscopy; we compared two such regimens with placebo.

Patients, methods, and results

Of 184 patients undergoing routine diagnostic fiberoptic bronchoscopy without transbronchial biopsy, 182 consented to enter a consecutive double blind comparison of (a) intravenous phenoperidine and droperidol with saline placebo or (b) intravenous midazolam with saline placebo. Three doctors performed the bronchoscopy; all patients received supplemental oxygen, topical lignocaine, intravenous atropine 600 µg, and the trial drugs through individual syringes prepared by the pharmacy department. The dose given was varied to produce light sedation, with most patients receiving phenoperidine 1 mg and droperidol 5 µg or midazolam 70 µg/kg.

A visual analogue scale (100 mm) was used to score the answer to five questions about the ease and comfort of bronchoscopy, high scores indicating an unfavourable response. Results are expressed as medians with differences, 95% confidence intervals, and the significance of the differences (Mann-Whitney U test; Minitab). Immediately after bronchoscopy doctors stated whether they thought active drug or placebo had been used and rated the ease of performing the procedure. At the same time they and the attendant nurses rated how comfortable the patient had been during the procedure. Patients were assessed by a doctor and when fully recovered (usually around six hours) rated how comfortable they had been during the procedure and their willingness to undergo a repeat procedure if one was clinically indicated.

Fifty patients were randomly assigned phenoperidine and droperidol and 51 placebo. Midazolam and placebo were randomly assigned in the ratio of two to one to 51 and 30 patients respectively. For 180 patients the study bronchoscopy was their first such procedure, two patients having undergone one several years previously. Doctors correctly identified active treatment in 41 (82%) of those receiving phenoperidine

Age, sex ratio, and visual analogue scores of patients in placebo controlled comparison of sedation with phenoperidine and droperidol or with midazolam during fiberoptic bronchoscopy

	Drug	Placebo	Difference (95% confidence interval	P value*
<i>Phenoperidine and droperidol</i>				
Mean age of patients (years)	64.1	64.1		
No of men: women	31:19	36:15		
Median visual analogue scores (mm) for:				
Ease of procedure (doctor)	11	22	11 (5 to 19)	0.001
Comfort of procedure:				
Doctor	11	20	7 (2 to 13)	0.01
Nurse	12	30	16 (5 to 19)	0.001
Patient	45	45	-1 (-13 to 11)	0.9
Willingness to repeat (patient)	46	24	-18 (-34 to -3)	0.008
<i>Midazolam</i>				
Mean age of patients (years)	63.3	61.9		
No of men: women	37:14	19:11		
Median visual analogue scores (mm) for:				
Ease of procedure (doctor)	19	30	9 (2 to 16)	0.016
Comfort of procedure:				
Doctor	11	14	2 (-2 to 16)	0.285
Nurse	20	36	6 (-3 to 19)	0.192
Patient	30	36	7 (-3 to 19)	0.166
Willingness to repeat (patient)	19	8	0 (-9 to 5)	0.936

*Mann-Whitney U test.

and droperidol and in 27 (53%) of those given midazolam. The table shows median scores and 95% confidence intervals.

Comment

One of the main objects of sedation is to make fiberoptic bronchoscopy less unpleasant for patients. Several different regimens have been described; phenoperidine and droperidol and, more recently, midazolam are frequently used.²

In our study phenoperidine and droperidol produced sedation, with 82% of the injections being correctly identified. Doctors and nurses found that bronchoscopy was more easily performed and patients more comfortable with this regimen than with placebo. Patients, however, found no difference in comfort between the active and placebo regimens, and they were less willing to have the test repeated when they had received these drugs. Although this combination has the theoretical advantages of amnesia, analgesia, euphoria, and cough suppression, the dysphoric effects probably taint patients' perception of the procedure.

The benzodiazepine midazolam would be expected to be helpful by producing amnesia and anxiolysis. In the doses we used, however, there was little obvious effect, doctors correctly identifying its use on only 52% of occasions. Furthermore, although doctors found the procedure easier with midazolam, the drug was not significantly better than placebo in making patients comfortable or willing to have the test repeated.

These sedative regimens fail in their primary

function of making the procedure more tolerable for patients. This may be partially explained by the amount of sedation given; we titrated the dose to produce light sedation to minimise the risks previously described.² Given the patients' opinion, we suggest that phenoperidine and droperidol should no longer be recommended and that light sedation with midazolam has few benefits. Our results suggest that routine sedation has little part to play in patients undergoing a single diagnostic procedure.

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Impact of war on infectious disease in Bosnia-Herzegovina

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The war that broke out in Bosnia-Herzegovina in April 1992 resulted in the collapse of surveillance of infectious diseases in many areas. The Bosnian authorities recognised the importance of surveillance in managing outbreaks of communicable diseases and the management and evaluation of the humanitarian aid programme, and they have rebuilt the notification system during the conflict with the help of the World Health Organisation. We compared the rates of notification of infectious diseases during 1993 with those during 1987-91.

Methods and results

The surviving elements of the pre-existing surveillance system were used to report to the Republic Institute of Public Health in Sarajevo. Notification was carried out by experienced local staff, often those responsible for notification before the conflict. Various methods were used to overcome difficulties in trans-

mitting notifications. Telephone lines worked occasionally, even across front lines; international humanitarian aid staff visited isolated locations and collected forms. For some enclaves the only method available was amateur radio.

The population figure that we used to calculate incidence of disease was the official estimate of beneficiaries of aid. The figures do not cover tuberculosis, which was reported separately.

During 1993, 45 200 reports were received, covering an estimated population of 1 608 000. The table shows the major conditions notified per 100 000 population for 1987 to 1993. No data were available for 1992.

In the years before the conflict the number of notifications had declined steadily; this decline was reversed for many conditions in 1993. Almost two thirds of disease reported was enteric—mainly, enterocolitis and hepatitis A, and toxoinfectio alimentaris (severe diarrhoeal disease with systemic manifestations of confusion and fever for which no clear definition differentiates it from enterocolitis). The other condition with a notable rise was mycosis (skin fungal infection). There was a fall in the notification of influenza, salmonellosis, and the common childhood diseases (mumps, measles, whooping cough, and scarlet fever).

Comment

The impact of the war in Bosnia on the morbidity of the civilian population and the lack of accurate data have been noted.^{1,2} The data presented here were obtained during a war, from areas of conflict; the data are flawed yet have provided objective information for guiding public health interventions. The prewar reporting categories were retained for comparative purposes, but the absence of confirmation by laboratories of most conditions means that the data must be interpreted with caution. The apparent rise in enterocolitis, hepatitis A, and scabies may be spurious. Increased finding or reporting of cases seems unlikely during a war. Furthermore, the decline in the reporting of conditions such as measles, mumps, and scarlet fever suggests underreporting rather than overreporting. Preferential reporting of diarrhoeal disease and hepatitis over respiratory disease may have occurred. Inadequate or destroyed laboratory facilities have probably resulted in a bias towards conditions that do not require confirmation by a laboratory. Reporting was performed, however, by experienced staff, which should maintain consistency. The increased rate of notification reported here is probably an underestimate of the true figure because of underreporting and inflated population estimates—population estimates are the basis for calculating humanitarian aid so they tend to be overestimated.

The importance of epidemiological data in guiding the planning and allocating of resources for emergency

Notifications of major diseases per 100 000 in Bosnia-Herzegovina, 1987-93*

	1987	1988	1989	1990	1991	1993	1987-91 (mean)	Change (1993 compared with mean 1987-91)
Enteric disease:								
Bacillary dysentery	10.3	6.7	7.2	6.6	5.4	51.0	7.3	7.0
Enterocolitis	127.2	109.5	95.1	95.0	70.8	1313.3	99.5	13.2
Hepatitis A	122.5	141.9	95.0	79.4	71.9	381.1	102.1	3.7
Salmonellosis	20.6	14.8	12.52	17.03	9.83	3.23	14.95	0.2
Toxinfectio alimentaris†	31.9	25.8	21.6	18.4	20.9	37.4	23.7	1.6
Skin infections and infestations:								
Erysipelas	1.2	1.1	1.0	1.0	1.1	0.2	1.1	0.2
Mycosis	0.9	1.9	0.8	0.3	0.2	14.0	0.8	17.2
Scabies	116.9	78.4	57.9	48.9	36.0	780.2	67.6	11.6
Meningitis:								
Bacterial	3.1	4.1	4.4	3.9	3.7	4.7	3.8	1.2
Viral	4.8	7.0	5.7	3.6	4.8	0.9	5.2	0.18
Childhood disease:								
Measles	18.2	11.0	95.7	11.44	4.0	15.5	28.1	0.55
Mumps	18.0	41.2	84.5	19.8	7.6	8.6	34.2	0.25
Whooping cough	11.3	5.0	4.6	6.4	5.5	5.1	6.6	0.78
Rubella	8.7	20.7	35.2	6.5	5.3	9.0	15.3	0.59
Scarlet fever	53.8	36.4	48.9	36.4	29.9	14.5	41.1	0.35
Others:								
Brill-Zinsser disease	0.4	0.4	0.4	0.3	0.3	0.1	0.4	0.34
Gonorrhoea	12.3	7.9	5.7	4.0	3.2	9.3	6.6	1.40
Hepatitis B	6.5	5.3	7.2	7.2	5.8	3.7	6.4	0.57
Infectious mononucleosis	5.2	5.9	6.7	5.9	6.0	1.4	5.9	0.24
Influenza	203.2	94.4	1349.4	808.4	560.4	17.2	603.2	0.03
Leptospirosis	0.3	0.3	0.6	0.3	0.2	0.9	0.3	2.75
Streptococcal sore throat	48.2	39.1	34.2	31.3	36.3	17.5	37.8	0.46
Total	1218.4	973.8	997.3	781.7	521.9	2690.5	898.6	3.3

*Table comprises data for major diseases notified, except for totals, which cover all notifications; no data were available for 1992.

†Severe diarrhoeal disease with systemic manifestation of confusion and fever, for which no clear definition differentiates it from enterocolitis.