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Original Article

A Randomised Study of Midazolam for Sedation in Flexible Bronchoscopy

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ABSTRACT

Introduction: Flexible bronchoscopy (FB) is a procedure which is not usually tolerated well by the patient. This makes the examination more difficult, often needing repetition with the subsequent lowering of diagnostic performance.
Objective: The principal aim of our study is to analyse whether the use of a local anaesthetic with midazolam whilst performing an FB improves the quality of examination in terms of patient tolerance. Also of interest was to find out if this would improve the acceptance of a second or further FB, and the satisfaction of the bronchoscopist in performing these examinations.
Patients and methods: A randomised, double blind and controlled with placebo, prospective study has been carried out to assess the use of midazolam. This included 152 patients, randomised into two groups: Group A—79 (51.9%) patients who received midazolam before the FB, and Group B—73 (49.1%) patients who received placebo. The patients were given a questionnaire about different aspects of perception of the procedure after the respiratory endoscopy and another was given to the bronchoscopist.
Results: Both groups started off with a similar assessment of fear and nervousness. Group A gave a much higher score than Group B referring to variables related to symptoms and feeling. Patient cooperation assessed by the bronchoscopist was similar in both groups, although the length of the procedure and difficulty was higher in group B.
Conclusion: Our results show that patients sedated with midazolam tolerate FB better, remember less of the procedure itself and have a better predisposition to repeat the procedure. The bronchoscopist has less difficulties during the procedure and shortens the time using the same techniques during the bronchoscopy. The lack of severe complications and these results suggest the use of sedation with midazolam as routine during FB.

Eficacia del midazolam para la sedación en la broncoscopia flexible. Un estudio aleatorizado

Palabras clave:
Sedación
Broncoscopia flexible
Midazolam
Tolerancia

RESUMEN

Introducción: La broncoscopia flexible (BF) es una técnica habitualmente no bien tolerada por el paciente, lo que dificulta la realización de la exploración, su repetición y proporciona un menor rendimiento diagnóstico.
Objetivo: Analizar si la sedación consciente con midazolam durante la BF mejora la calidad de la exploración en términos de tolerancia para el paciente. Conocer si mejora el grado de aceptación de una segunda o sucesivas BF y si mejora el grado de satisfacción del broncoscopista de la exploración realizada.

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Pacientes y métodos: Se ha realizado un estudio prospectivo, aleatorizado, doble ciego y controlado con placebo a recibir midazolam. Se incluyó a 152 pacientes aleatorizados en 2 grupos: grupo A de 79 pacientes (51,9%) que recibieron midazolam y grupo B de 73 pacientes (49,1%) que recibieron placebo. Los pacientes contestaron tras la BF un cuestionario sobre diferentes aspectos de la percepción de la exploración y el broncoscopista contestó otro.
Resultados: Ambos grupos comenzaron con una valoración de miedo y nerviosismo muy similar. El grupo A mostró una valoración muy superior al grupo B en lo referente a las variables relacionadas con los síntomas y las sensaciones. La colaboración del paciente fue similar en ambos grupos, aunque la duración de la prueba y la dificultad fueron mayores en el grupo B.
Conclusiones: Nuestros resultados demuestran que la BF en los pacientes sedados con midazolam se tolera mejor, tienen menos recuerdos y refieren una mejor predisposición a repetir la exploración. El broncoscopista encuentra menos dificultad durante su realización y acorta su duración al realizar las mismas técnicas durante la broncoscopia. La ausencia de complicaciones graves y estos resultados aconsejan el uso de sedación con midazolam de forma habitual durante la BF en pacientes sin contraindicaciones.

Introduction

Flexible bronchoscopy (FB) is a diagnostic and therapeutic technique with enormous clinical repercussions. Patients usually show poor tolerance to this technique.[1] which means the test is more difficult to perform and its diagnostic capacity is reduced. In addition, the distress that it causes the patient makes it less likely that he will accept a repetition of the test, which is sometimes necessary. This is why there are more and more medical groups that are interested in finding some form of sedation which ensures greater tolerance, comfort and cooperation during the test on the part of patients.[2-5] However, other groups fail to regard sedation as a routine technique which is necessary in bronchoscopy[6-8] and they only consider this option in situations of patent anxiety or when the patient expresses a desire for sedation.

Little information based on high-level scientific evidence is currently available about the relationship between conscious sedation and the level of patient satisfaction with and tolerance of FB,[2,4-6,9,10] amongst other reasons because the ideal sedation for this technique has not been defined.[11] However, various drugs, such as midazolam or propofol, and even combinations of benzodiazepines and certain opiates, have been proposed. Midazolam is one of the most widely used of all these drugs.[11] It is a benzodiazepine which has a rapid-onset but short-lasting depressant action on the central nervous system, as well as sedative, anxiolytic, amnesic, anticonvulsant and muscle relaxant properties, and it has the advantage that its effect can be rapidly counteracted using flumazenil, a competitive antagonist for short-acting benzodiazepine receptors in situations of overdose.[11]

The main aim of our study was to analyze whether conscious sedation with midazolam during FB increases the quality of the test in terms of patient tolerance. Secondary objectives included determining whether the level of acceptance of bronchoscopy by patients improves with sedation once the endoscopic test has been completed and if a second or successive tests need to be performed. It was also our aim to evaluate whether sedation improves the level of satisfaction of the bronchoscopist with the test which has been conducted.

Patients and Methods

Study Design

This is a randomised, double-blind, prospective, placebo-controlled clinical trial lasting 3 months where patients received midazolam or placebo. It was approved by the hospital ethics committee and all the patients signed the informed consent in order to participate in the study. The clinical trial is registered with registration No. NCT01038882.

Study Patients

All the consecutive patients, who underwent a fibrobronchoscopy from October 20th 2008 to January 21st 2009 at the Endoscopy Unit of the Pneumology Department of La Fe University Hospital for diagnostic or therapeutic purposes, were included in the study. In total there were 238 patients, 86 of whom were excluded for various reasons (fig. 1), which meant that that there were 152 subjects in the trial. FB was requested by the clinician responsible for the

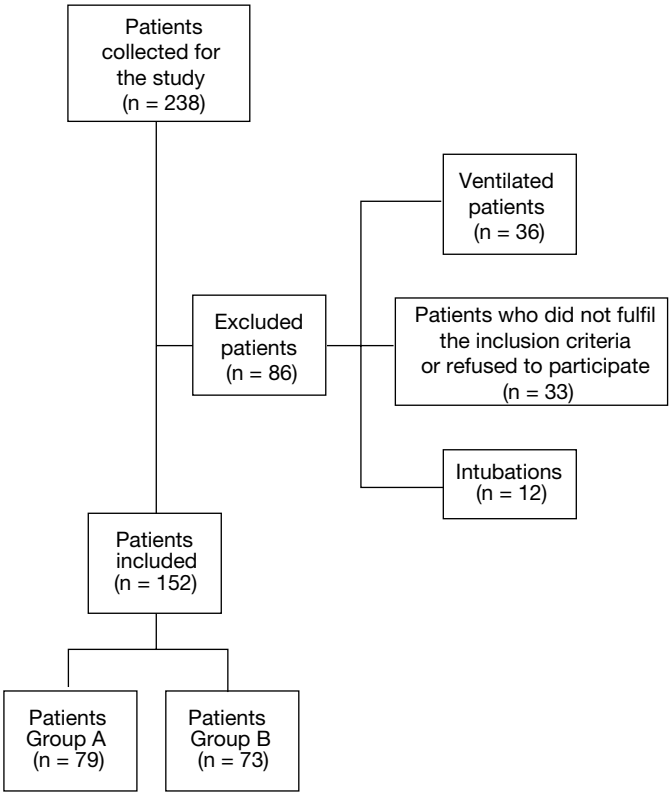

Figure 1. Flow Chart of Study Protocol. Group A: sedated patients; group B: placebo patients.

patient owing to suspected neoplastic disease, in order to take microbiological samples in cases of infectious respiratory diseases, to analyze interstitial disease or to evaluate symptoms, such as haemoptysis or a chronic cough. Patients who were 18 or older but less than 80 years of age and classified as having an American Society of Anaesthesiology risk i–iii[12] were considered. Patients with haemodynamic instability (defined as having a heart rate below 60 or above or equivalent to 120 bpm, or a systolic pressure lower than 100 or higher than or equivalent to 180 mmHg); abnormal liver function (defined by levels of aspartate aminotransferase or alanine aminotransferase higher than or equivalent to 3 times the normal peak value or total bilirubin higher than or equivalent to 1.5 times the normal peak value); a platelet level of less than 50,000/mm^3 or Quick index below 50%; hypersensitivity to benzodiazepines or COPD which is severe (defined as FEV_1 above or equivalent to 30% and less than 50% of the expected value after using a bronchodilator) or very severe (defined as FEV_1 below 50% of the expected value after bronchodilator use and chronic respiratory failure), [13] or depression of the level of consciousness or who did not wish to participate in the study were excluded.

Procedure and Protocol

After signing the informed consent, patients were put on a drip and maintenance saline solution was administered. Oxygen saturation was monitored by pulse oximetry, and heart rate and blood pressure were controlled. All the patients received supplementary oxygen, which was administered using oxygen delivery glasses at a flow rate of 4 L/min. Before starting sedation, 10% lidocaine was topically applied as a local anaesthetic to the rhinopharyngeal and oropharyngeal region, and, by puncturing the cricothyroidal membrane, to the trachea.

The patients were randomly assigned to 2 groups (group A and group B) using a software program. Neither the patients nor the bronchoscopists knew what type of sedation was being used. Group A received intravenous midazolam at a dose of 0.07–0.1 mg/kg and it was administered for 30 s 2 min before initiating the test. Group B received a placebo (saline solution) at the same dose and also 2 min before initiating the test. In both groups supplementary doses of 1 mg were administered (up to a maximum of 5 mg) before or during the test at intervals of over 2 min, if required by the patient.

During the FB, different diagnostic techniques, including the aspiration of secretions, bronchial or transbronchial biopsies, «blind» transbronchial biopsies of adenopathies or mediastinic masses (fine needle aspiration), bronchoalveolar lavage and the removal of samples using brush cytology, were performed. The number of techniques applied in both groups were quantified.

All the patients were given a questionnaire to complete about different aspects of their perception of the test. It consisted of 13 questions with multiple-choice answers which were awarded points on a Likert type response scale (1 = a lot; 2 = quite a lot; 3 = somewhat; 4 = a little and 5 = very little). There was also one yes/no question and 2 questions with other alternative responses. Patients had to complete this questionnaire 30 min after the test, as long as they were no longer under the effects of sedation. The bronchoscopist also completed a questionnaire, consisting of 4 questions, immediately after the test was performed. Two questions had multiple-choice scale responses (1 = a lot, 2 = somewhat and 3 = null) and 2 questions had different response alternatives (annex 1). The visual scale for sedation consisted of a scale scoring 0–10, in which 0 corresponded to no sedation, 2 to minimal sedation (defined as the presence of normal responses to verbal stimuli), 5 to moderate sedation (defined as rapid and deliberate responses to repeated verbal or tactile stimulation), 8 to deep sedation (defined as deliberate responses to repeated painful or verbal and tactile stimulation) and 10 to general anaesthesia (defined as the inability to wake the patient, even using painful stimulation).

Statistical Analysis

The SPSS for Windows software package version 15.0 (Chicago, Illinois, USA) was employed for the statistical analysis. The quantitative variables were tabulated as the mean plus standard deviation, while the qualitative variables were tabulated as their absolute value and percentage over the total. The Kolmogorov-Smirnov test was used to analyze the normal distribution of the variables. The sample size was calculated and an α error of 5% and a β error of 20%, as well as a clinically significant minimum difference of one scale (one point) for the questions formulated using the Likert type scale (0–4 points), was accepted. With these parameters the minimum sample size was 124 patients (62 per randomised group). The comparison of the baseline variables for both treatment groups

Table 1
Baseline Variables in the Entire Study Group and Each Randomised Group

Variable	All patients (n = 152)	Group A (n = 79)	Group B (n = 73)
Age in years*	51.9 ± 14.5	53.9 ± 15.5	59.6 ± 13.4***
Sex (F/M) n (%)	105 (69.1)/47 (30.9)	54 (68.4)/25 (31.6)	51 (69.9)/22 (30.1)
Origin: hospital admission/health centre n (%)	72 (47.3)/80 (52.6)	40 (50.6)/39 (49.3)	32 (43.8)/41 (56.1)
BMI (kg/m^2)	26.3 ± 4.11	25.7 ± 4.1	26.8 ± 3.9
*Previous FB***	0.51 (0–8)	0.48 (0–8)	0.53 (0-8)
1.ª FB n (%)	119 (78.2)	62 (78.5)	57 (78.1)
SBP (mmHg)*	136.6 ± 21.6	135 ± 22.8	137.8 ± 20.3
DBP (mmHg)*	83.3 ± 12.4	84.2 ± 12	82.4 ± 12.7
HR bpm*	84.5 ± 16.4	85.2 ± 17.6	83.9 ± 15.3
$SatO_2$ (%)*	97.5 ± 1.97	97.3 ± 2.4	97.7 ± 1.4
Lung transplant n (%)	17 (11.2)	11 (13.9)	6 (8.2)
Type of Tests n (%)			
BAS	52 (35.3)	25 (33.3)	27 (37.5)
BB	30 (20.4)	13 (17.3)	17 (23.6)
TBB	32 (27.7)	18 (24)	14 (19.4)
Transbronchial «blind» FNAB	18 (12.2)	11 (14.6)	7 (9.7)
BAL	59 (40.1)	27 (36)	32 (44.4)
Brush cytology	8 (5.4)	6 (8)	2 (27.7)
Total Number of Tests	147	75	72

BAL: bronchoalveolar lavage; BAS: bronchial aspirate; BB: bronchial biopsy; FB: flexible bronchoscopy; TBB: transbronchial biopsy; HR: heart rate; M: male; BMI: body mass index; bpm: beats per minute; F: female; FNAB: fine needle aspiration biopsy; DBP: diastolic blood pressure; SBP: systolic blood pressure; $SatO_2$: oxygen saturation.

*Expressed as mean ± standard deviation.

**Expressed as mean (range).

***p = 0.019.

was performed using the student's t-test for independent means in the case of quantitative variables with a normal distribution or otherwise by means of the Mann Whitney U test. For the comparison of the qualitative variables the chi-square test with the Yates correction was used, when necessary. In the case of the variables analyzed before and after the bronchoscopy, in each study group the differences obtained between the variables analyzed before and after the test were compared. This comparison was performed using the abovementioned statistical tests. In all cases $p < 0.05$ was regarded as a significant difference.

Results

The average age of the 152 patients included in the study, 105 of whom were male (69.1%), was 51.9 years (range: 28–79). The patients were randomly assigned to two groups. Group A consisted of 79 patients (51.9%), who received midazolam, and group B of 73 patients (49.1%), who received placebo. Table 1 shows the demographic data, the variables which were monitored during the performance of FB and the tests that were conducted in each group. When the two groups were compared, statistically significant differences were not observed between the baseline variables of the patients, except in the case of age, which was significantly lower in the placebo group (group A 53.9 ± 15.5; group B 59.6 ± 13.4; p = 0.019). Nor were differences found between the type of techniques which were used in each group, the number per technique or the total number of techniques that were performed.

The evaluation of the bronchoscopy by patients is shown in table 2 and we can see that the sedation induced by midazolam is much greater than for placebo in terms of the variables related to symptoms and sensations reported by patients, despite the fact that both groups began with a similar fear and nervousness rating, without showing statistically significant differences, before the bronchoscopy –questions 8 and 9 on the questionnaire.

Table 3 shows the evaluation of the bronchoscopist after performing FB. On the visual scale significant differences were found in the level of sedation and in the difficulty in performing the test in favour of group A, which was sedated with midazolam. However, the final dose of midazolam and placebo was similar in both groups, as was the evaluation of the collaboration of the patient by the bronchoscopist. The duration of the test, measured from the moment when the bronchoscope was inserted into the nose until its removal, was greater in the placebo group ($p < 0.0001$). The bronchoscopist evaluated patient collaboration similarly in both groups. It was not possible to complete the bronchoscopy in only 2 cases, one patient in each group, because of the poor collaboration of the patient; however, these patients were included in the study, as they had filled in the questionnaire and we had this information at our disposal. The rest of the patients in both groups collaborated during the test and collaboration was lacking in only 3 cases, despite which the test was concluded and the different samples which were required were obtained.

Table 4 shows the comparison between the randomised groups of the variables which were analyzed before and after the bronchoscopy. Differences were only found in systolic blood pressure figures in the midazolam group, this being lower at the end of the test (135 ± 22.8 vs. 129.6 ± 21.9 mmHg; p = 0.001).

The only complications were oxygen desaturations in 2 group A patients, one of which was less than 85%, and they recovered when the FiO_2 was increased and a dose of flumazenil was used to neutralize the effect of midazolam. There were 6 cases of moderate haemorrhage (4 in group A and 2 in group B) after taking different biopsy samples, which ceased after routine aspiration procedures and the instillation of cold saline solution. During the bronchoscopy 11 patients ((6 in group A and 5 in group B) developed tachycardia (100–150 pulsations per minute), which remitted at the end of the test. No other complications were recorded during the study.

Discussion

The results of our study demonstrate that FB patients sedated with midazolam showed better tolerance to the test. Sedation also reduces rejection on the part of patients when they are asked to repeat the test, lessens the complexity of the procedure for the bronchoscopist and shortens its duration.

Of all the benzodiazepines used for sedation during bronchoscopy, for example midazolam, diazepam, temazepam and lorazepam, midazolam is the one which is most widely used in respiratory

Table 3
Characteristics of the Bronchoscopy and Evaluation of the Test by the Bronchoscopist

Variable	Group A	Group B	p
	n = 79	n = 73	
Visual sedation scale	6.39 ± 2.2	2.78 ± 1.97	0.0001
Final sedation dose	3.61 ± 0.5	3.66 ± 0.44	NS
Patient collaboration	2.56 ± 1.1	2.41 ± 1.04	NS
Difficulty in performing the test	0.94 ± 1.01	0.5 ± 0.67	0.003
Duration of the test (min)	10.18 ± 3.7	13.04 ± 5.14	0.0001

Values expressed as mean ± standard deviation.
NS: not significant.

Table 2
Patient Evaluation of Bronchoscopy

Variable	Group A	Group B	p
	n = 79	n = 73	
Memories of test	3.38 ± 0.84	1.88 ± 1.1	0.0001
Pain during the test	1.73 ± 1.15	0.73 ± 0.87	0.0001
Coughing during the test	1.84 ± 1.13	1.2 ± 1.12	0.0001
Feeling of breathlessness	1.61 ± 1.15	0.5 ± 0.8	0.0001
Afraid if test had to be repeated	1.98 ± 1.03	0.83 ± 0.83	0.0001
Afraid prior to the test	1.83 ± 1.5	1.84 ± 1.6	NS
Nervous prior to the test	1.98 ± 1.36	2.08 ± 1.4	NS
Nervous if test had to be repeated	2.3 ± 1.16	1.03 ± 1.16	0.0001
Indifferent if test had to be repeated	2.63 ± 1.01	1.06 ± 1.01	0.0001
Would you repeat the test if necessary?	2.84 ± 0.5	2.53 ± 0.58	0.002
Feeling of distress during the test	2.38 ± 0.98	1.01 ± 0.95	0.001
Discomfort caused by the test	2.5 ± 0.97	1.15 ± 0.97	0.001
Feeling that in general test was not unpleasant	0.35 ± 0.53	1.2 ± 1.03	0.001

Values expressed as mean ± standard deviation.
NS: not significant.

Table 4
Comparison between the Randomised Groups of the Variables analyzed before and after the Bronchoscopy

Variable	Group A				Group B			
	n = 79				n = 73			
	Pre-test	Post-test	Dif. (95% CI)	p	Pre-test	Post-test	Dif. (95% CI)	p
SBP (mmHg)	135 ± 22.8	129.6 ± 21.9	5.4	0.001	135.7 ± 20.2	140.7 ± 18.6	–3	NS
DBP (mmHg)	85.1 ± 12	85.5 ± 13.2	–0.4	NS	81.4 ± 12.7	84.9 ± 11.7	–3.5	NS
HR (bpm)	85.2 ± 17.5	87.2 ± 16.2	–2	NS	83.9 ± 15.3	83.6 ± 14.4	0.3	NS
$SatO_2$ (%)	97.3 ± 2.3	96.7 ± 2.8	0.6	NS	97.7 ± 1.4	96.4 ± 2.39	1.3	NS

Values expressed as mean ± standard deviation.
HR: heart rate; CI: confidence interval; Dif.: difference; bpm: beats per minute; NS: not significant; DBP diastolic blood pressure; SBP: systolic blood pressure; $SatO_2$: oxygen saturation.

endoscopies,[11] due to its pharmacokinetic properties. To assess the benefits of midazolam sedation we conducted a double-blind study including 2 randomised groups, one of which was a control group, with similar demographic characteristics, with the exception of age. Therefore, the age of the group which received midazolam was significantly lower than in the control group. In our opinion, this statistical difference is not significant, given that it is a known fact that younger patients show poorer tolerance to the test.[14] In our study tolerance to bronchoscopy was better in the group which received sedation than in the older, unsedated group. In order to determine the level of sedation, there have been clinical trials which compared midazolam with other drugs, such as opiates —alfentanil,[15]— or intravenous anaesthetics, such as propofol,[16,22,23] or different combinations of the two.[9,17,18] Our study contributes high-level evidence, as it is a clinical trial with a considerable number of patients and the only trial that compares midazolam with placebo during FB.

It has been postulated that lung transplant patients who take cyclosporin require more doses of midazolam, as cyclosporin is eliminated via the cytochrome P450 pathway and this would mean midazolam would be metabolized more quickly.[19] Our study only includes 11.2% of transplant patients, so this aspect has not been evaluated. However, although it is true that the pharmacokinetics of midazolam can be modified by drugs like cyclosporin, this patient group is sometimes subjected to repeated bronchoscopies, so psychological factors could modify the response of these patients to midazolam when a new test is performed.

When all the patients were asked how they felt before having the bronchoscopy, they referred to feeling afraid or nervous. This feeling of distress prior to a test may be influenced by various factors and one of these is the level of information the patient receives about the procedure he will undergo, as Uzbeck et al's study demonstrates.[20] In our study the doctors who prescribed the bronchoscopy had not prepared themselves to give a more detailed explanation than patients normally receive. Consequently, in both groups the feelings of fear and nervousness before having the bronchoscopy were similar. However, once the bronchoscopy had been performed, the symptom and feeling variables perceived by the patients were less marked in the group treated with midazolam. Amnesia induced by midazolam after the test is one of the variables which is related to fear of repeating the test and it is an important aspect of the patient's acceptance when a bronchoscopy has to be repeated.[21] The amnesic effect that midazolam produces after bronchoscopy is well-known.[22,23] In our study the questions related to this aspect showed that patients who had received midazolam had fewer memories of the test and were less afraid of repeating it. The amnesia induced by sedation also makes patients feel indifferent if a repetition of the bronchoscopy is proposed and they would feel less nervous during a second procedure, as the responses of the group which received midazolam show. Other authors who have used visual scales have evaluated tolerance to bronchoscopy differently.[3] In our study, the group which was given midazolam showed less pain, coughing or dyspnoea than the control group and they also experienced less distress and discomfort during the bronchoscopy. These isolated results are coherent with those of other authors, where tolerance to bronchoscopy with sedation is greater than if a local anaesthetic alone is used. Most of these studies are either uncontrolled[24,25] or the level of sedation has not been evaluated,[3,24,27] unlike our trial, which was placebo-controlled and where sedation level was also assessed. The responses of these patients explain why most patients prefer to be sedated during bronchoscopy and this agrees with the response of other patients, for example in the study by Putinati et al.[3]

Usually bronchoscopists tend to minimize the distress of patients during bronchoscopy.[3,26,27] Indeed, in our study the assessment of patient collaboration by the person performing the test was similar in both groups. However, the level of sedation estimated by the bronchoscopist was greater in the midazolam group and it was less difficult to perform the test. The duration of the test was also shorter in the midazolam group.

One of the reasons the use of sedation has not become generalized during FB is its potential adverse effects. Out of all the complications which occurred in our study, there were only 2 desaturations in the group sedated with midazolam. These cases of hypoxaemia could be attributed to the bronchoscopy itself or the depression caused by benzodiazepines.[3] The 2 patients recovered when their FiO_2 was increased and flumazenil was only added in the case in which desaturation was less than 85% in order to counteract the possible effect of midazolam. Furthermore, if we estimate blood oxygen saturation before and after the test in both groups and compare the two groups, we fail to find statistical differences. If we compare the other variables measured before and after the test, only systolic blood pressure decreased significantly in the group sedated with midazolam. Benzodiazepines lower blood pressure, although, in previous studies where systolic blood pressure was measured before and after bronchoscopy, this effect was not detected. These results demonstrate that midazolam is a safe benzodiazepine for the sedation of patients who receive FB.

To conclude, the data from this clinical trial shows that FB is better tolerated in patients sedated with midazolam and that patients have fewer memories of the test, which means they are more likely to repeating it. Furthermore, even though the bronchoscopist considers the collaboration of the patient to be the same, during the test he encountered less difficulty and during the bronchoscopy it was less time-consuming to perform the same techniques. The absence of severe complications and these results mean the routine use of sedation with midazolam during FB is advisable in patients with no contraindications.

Anexo 1

Patient questionnaires and the doctor who performs the examination with the possible answers

Cuestionario para el paciente				
1- ¿Es su primera broncoscopia flexible?				
Sí	No			
2- ¿Recuerda algo de la broncoscopia?				
Mucho	Bastante	Algo	Poco	Muy poco
3- ¿Sintió dolor durante la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco
4- ¿Tuvo tos durante la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco
5- ¿Tuvo sensación de falta de aire durante la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco
6- ¿Cuál fue para usted el peor momento?				
La espera previa				
El momento de la anestesia				
La entrada del broncoscopio por la nariz				
El principio de la exploración				
El final de la exploración				
No hay ningún momento malo				
Todo fue malo				
7- ¿Le ha resultado larga la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco
8- ¿Sentía miedo antes de la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco
9- ¿Sentía nerviosismo antes de la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco
10- ¿Sentiría miedo si tuviera que repetirse la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco
11- ¿Se encontraría nervioso si tuviera que repetirse la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco
12- ¿Se sentiría indiferente si tuviera que repetirse la exploración?				
Mucho	Bastante	Algo	Poco	Muy poco

Anexo

Anexo

Cuestionario para el paciente (*continuación*)				
13- ¿Se repetiría la broncoscopia si fuese necesario?				
Sí	Probablementesí	Probablementeno	No	
14- En general la exploración ¿le ha resultado angustiosa				
Mucho	Bastante	Algo	Poco	Muy poco
15- En general la exploración ¿le ha resultado incómoda?				
Mucho	Bastante	Algo	Poco	Muy poco
16- En general la exploración ¿le ha resultado agradable?				
Mucho	Bastante	Algo	Poco	Muy poco
Cuestionario para el médico que realiza la exploración				
1- ¿Cuál ha sido la colaboración del paciente?				
Mucha	Poca*	Nula**		
2- ¿Cuál ha sido la dificultad para la realización de la exploración?				
Mucha	Poca*	Nula**		
3- ¿Se completó la exploración?				
Sí, gracias a la buena colaboración del paciente				
Sí, pese a la poca colaboración del paciente				
Sí, pese a la nula colaboración del paciente				
No, por la mala colaboración del paciente				
4- ¿Qué complicaciones se presentaron durante la exploración?				
Desaturación				
Hemorragia moderada				
Taquicardia				
Otras				

* Definido como más de dos intentos de pasar cuerdas vocales de forma infructuosa por defensa del paciente.
** Definido como reacción de defensa de forma vigorosa.

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