



ORIGINAL ARTICLE

Sedation with midazolam in flexible bronchoscopy – A prospective study[☆]

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KEYWORDS

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Abstract

Introduction: Sedatives have been increasingly used to improve patient comfort during flexible bronchoscopy (FOB). Due to its rapid-onset, anxiolytic and amnestic properties, midazolam is one of the most commonly used sedatives.

Objectives: To evaluate the effect of sedation with midazolam, including patient tolerance, complications and its potential use on a daily routine basis.

Methods: A multi-centre, prospective, randomized, placebo-controlled study was made on 100 patients submitted to FOB in two Pulmonology Departments. Midazolam (0.05 mg/kg) was administered to patients in Group 1 and saline solution (0.9% NaCl) to patients in Group 2, 5 min before the procedure. The Hospital Anxiety and Depression Scale (HADS-A) was used to determine patient anxiety level. Subjective questionnaires concerning main fears and complaints were answered before and after FOB.

Results: Mean age was 56.0 ± 14.1 years; 66% were male. Most (65%) patients had low score (<7) in HADS-A scale with no difference between groups. No significant differences were seen between groups concerning FOB duration, procedures, lidocaine dosage and complications. Systolic blood pressure during and after FOB was significantly higher ($p < 0.003$) in Group 2.

Patients in Group 1 experienced less cough (32% vs 56%; $p = 0.03$) and dyspnoea (2% vs 34%; $p < 0.001$) than in Group 2, while nausea (6% vs 18%; $p > 0.05$) and pain (4% vs 12%; $p > 0.05$) were not statistically different.

Willingness to repeat the exam was reported in all patients in Group 1 and in 82% in Group 2 ($p = 0.003$).

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PALAVRAS-CHAVE

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Conclusion: Sedation with midazolam in FOB improved patient's comfort and decreased complaints, without significant haemodynamic changes. It should be offered to the patient on a routine basis.

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Sedação com midazolam na broncofibroscopia – estudo prospectivo**Resumo**

Introdução: Os agentes sedativos têm vindo a ser cada vez mais utilizados na broncofibroscopia (BF) para melhorar o conforto do doente. Devido à sua rápida ação, propriedades ansiolíticas e amnésicas, o midazolam é um dos sedativos mais frequentemente usados.

Objetivos: Avaliar o efeito da sedação com midazolam na BF, incluindo a tolerância do doente, complicações e a sua potencial aplicação na prática clínica diária.

Material e Métodos: Estudo multicêntrico, prospetivo, randomizado, controlado com placebo, com inclusão de 100 indivíduos submetidos a BF em 2 Serviços de Pneumologia. Doentes do Grupo 1 receberam midazolam (0,05 mg/kg) e doentes do Grupo 2 receberam placebo (0,9% NaCl), 5 minutos antes do procedimento. A escala de ansiedade «The Hospital Anxiety and Depression Scale» (HADS-A) foi aplicada para determinar o nível de ansiedade basal do doente. Questionários subjetivos acerca dos principais receios e queixas relativamente à BF foram aplicados antes e depois do exame.

Resultados: Média de idades de $56,0 \pm 14,1$ anos; 66% do sexo masculino. A maioria (65%) dos doentes apresentava baixa pontuação (<7) na escala HADS-A, sem diferença entre grupos.

Não se observaram diferenças significativas entre os 2 grupos no que diz respeito à duração da BF, procedimentos realizados, dose total de lidocaína usada e complicações observadas. A pressão arterial sistólica foi significativamente mais elevada ($p < 0,003$), durante e após a BF, nos indivíduos do Grupo 2.

Os doentes do Grupo 1 apresentaram menos tosse (32 vs 56%; $p = 0,03$) e dispneia (2% vs 34%; $p < 0,001$) comparativamente com o Grupo 2, não se registando diferenças significativas relativamente à náusea (6 vs 18%; $p > 0,05$) e à dor (4 vs 12%; $p > 0,05$).

Foi demonstrada recetibilidade em repetir o exame por todos os doentes do Grupo 1 e em 82% dos doentes do Grupo 2 ($p = 0,003$).

Conclusão: A sedação com midazolam na BF aumentou o conforto e diminuiu queixas dos doentes, não se verificando alterações hemodinâmicas significativas. Deve ser oferecida, de forma regular, ao doente submetido a BF.

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Introduction

Sedation in flexible bronchoscopy (FOB) is widely used by pulmonary physicians in Europe and in the USA.^{1,2} However, to our knowledge, in Portugal its use is not a daily routine practice.

FOB is usually stressful and patients often present fear and anxiety. Discomfort during and after FOB, with persistent cough, pain and shortness of breath, is also common. Several authors have shown that use of sedation ensures greater comfort for the patient and strengthens the willingness to repeat the exam, if necessary. Moreover, it may shorten the duration of the examination, with fewer interruptions, providing more satisfactory conditions for complex techniques (e.g., bronchial brushing and biopsy, trans-bronchial needle aspiration), and therefore better diagnostic results.²⁻⁴

The choice of a drug with sedative properties and its dose varies according to the patient's age, associated

morbidities, medication and bronchoscopist's personal preference.⁵ The most commonly used drugs are midazolam and propofol. The former has optimal properties for ambulatory invasive procedures – with rapid onset action, short half-life and few side effects. Some studies have shown that midazolam is well tolerated and associated to greater patient satisfaction, compared to other sedatives.^{6,7} Others have not reported significant differences, in terms of efficiency and tolerance, between midazolam and opioids, as a single sedative drug during FOB.⁷ The risk for cardio-respiratory depression should always be considered, although the usually low dosage (<5 mg), the continuous cardiac and respiratory monitoring and the existence of an effective antagonist (flumazenil), make it a rare and well-manageable side effect.^{5,8}

Sedation during FOB is, therefore, a common practice worldwide. The potential cardiorespiratory depressor effect, especially when used in double or triple combination, warrants adequate safety measures including

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