HOSPITAL PHYSICIAN®

PULMONARY DISEASE BOARD REVIEW MANUAL

Drug-Induced Pulmonary Disease

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Table of Contents

Cover Illustration by May Cheney

next page

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INTRODUCTION

Drug therapy is a relatively common iatrogenic cause of pulmonary diseases, yet therapeutic-drug–induced disorders are not always suspected when a patient becomes ill. Moreover, drug toxicity is not a reportable disease; for this reason, the actual number of cases of illness due to drug therapy is unknown. It is estimated, however, that 2% to 5% of hospital admissions (involving approximately 1 million people) are related to adverse drug reactions.[1] Also, approximately 10% to 18% of hospitalized patients will experience toxic reactions to therapeutic drugs.[2] The overall mortality rate associated with adverse drug reactions is approximately 2% to 12%, and approximately 0.03% to 3% of all hospital deaths are related to such drug reactions.[1,2] This manual uses a case-based discussion to review the most common medications that have caused lung injury in patients, clinical manifestations of pulmonary drug toxicity, and recommendations for treatment.

CASE PRESENTATION

INITIAL PRESENTATION AND HISTORY

A 63-year-old man presents to the office with a 4-month history of a nonproductive cough and progressively increasing dyspnea on exertion. Before this 4-month period, he could walk approximately 2 miles without dyspnea developing; however, he now experiences dyspnea after walking 1 block. He has not experienced any hemoptysis, fevers, chills, weight loss, chest pain, orthopnea, or paroxysmal nocturnal dyspnea. He is a nonsmoker and drinks alcoholic beverages on a social basis. His past medical history includes hypertension and coronary artery disease. Three years ago, he had a myocardial infarction and underwent a percutaneous coronary angioplasty procedure. Six months ago, he was found to have atrial fibrillation, which required treatment with amiodarone after attempts at chemical cardioversion with propafenone failed. He has maintained a sinus rhythm on the amiodarone treatment. His current medications include aspirin, metoprolol, enalapril, furosemide, metolazone, and amiodarone.

PHYSICAL EXAMINATION

On physical examination, it is observed that the patient is a slender man who appears to be in no acute distress and who can sit comfortably. He is afebrile, with a regular pulse of 64 bpm, blood pressure of 146/70 mm Hg, respiratory rate of 16 breaths/min, and an oxygen saturation of 94% on room air. However, his oxygen saturation falls to 90% after walking for 5 minutes.

The patient has a regular cardiac rhythm, with a normal S_1 and S_2. No murmur or gallop is detected. There is no jugular venous distention. Inspiratory crackles over the lung bases are present on auscultation of the lungs. Results of the remainder of the physical examination are unremarkable.

- **Which of the case patient's medications could be associated with his pulmonary abnormalities?**

CONTINUED CLINICAL COURSE

On further review of the patient's medications, it is discovered that the dose of the amiodarone was titrated up to 800 mg/day over a period of 2 weeks. This dose was continued for an additional 2 weeks, and then the patient converted to sinus rhythm. The amiodarone dose was supposed to have been titrated down to the lowest effective maintenance dose, but the patient continued to take 800 mg/day. It is suspected that the amiodarone may be causing the patient's illness. Aspirin may also be a potential cause of pulmonary drug toxicity.

DRUG-INDUCED PULMONARY DISEASE

Since the first review of drug-induced pulmonary disease by Rosenow in 1972,[2] the list of medications that could potentially cause pulmonary disease has grown to include over 200 drugs. New reports continue to add medications to the list; however, it should be remembered that not all drug-induced disorders are confirmed or reported as such. Drug toxicity is not a reportable disease.