Lung Disease in Rheumatoid Arthritis

Zulma X. Yunt, MD, Joshua J. Solomon, MD*

KEYWORDS

• Rheumatoid arthritis • Extra-articular disease • Pulmonary • Interstitial lung disease • Interstitial pneumonia • Bronchiolitis • Pleural effusion • Drug-induced lung disease

KEY POINTS

- Rheumatoid arthritis commonly affects the lungs and can involve any compartment of the respiratory system.
- Usual interstitial pneumonia and nonspecific interstitial pneumonia are the most common patterns seen with interstitial involvement in rheumatoid arthritis.
- Treatment consists of long-term therapy with immunomodulatory agents.
- Further studies are needed to better characterize patients, predict progression, and determine optimal therapeutic regimens.

INTRODUCTION

Rheumatoid arthritis (RA) is a progressive, systemic autoimmune disorder characterized by articular and extra-articular manifestations. The lung is commonly a site of extra-articular disease. Within the lung, manifestations of RA vary and may include airways, parenchymal, vascular, and/or pleural disease (**Box 1**). Manifestations of lung disease in RA typically follow the development of articular disease, but in some instances lung involvement is the first manifestation of RA and is the most aggressive feature of the disease.[1] Clinicians should therefore remain alert to the possibility of lung disease in all patients with RA.

EPIDEMIOLOGY

RA is the most common connective tissue disease (CTD), with a prevalence of 0.5% to 2% in the general population.[2] The disease occurs more frequently in women than in men with a ratio of 3:1. Extra-articular disease occurs in approximately 50% of patients, with the lung being a common site of involvement.[3] Lung involvement may

Disclosure: NIH Diversity Supplement 3R01 HL109517–01A1S1.
Autoimmune Lung Center, National Jewish Health, 1400 Jackson Street, Denver, CO 80206, USA
* Corresponding author.
E-mail address: solomonj@njhealth.org

Rheum Dis Clin N Am 41 (2015) 225–236
http://dx.doi.org/10.1016/j.rdc.2014.12.004 rheumatic.theclinics.com
0889-857X/15/$ – see front matter

Box 1
Pulmonary manifestation of RA

Interstitial lung disease

- Usual interstitial pneumonia
- Nonspecific interstitial pneumonia
- Organizing pneumonia
- Lymphocytic interstitial pneumonia
- Acute interstitial pneumonia

Airways disease

- Follicular bronchiolitis
- Constrictive bronchiolitis (obliterative bronchiolitis)
- Bronchiectasis
- Cricoarytenoid arthritis

Rheumatoid nodules

Pleural disease

- Pleuritis
- Pleural effusion
- Pneumothorax
- Empyema

Vascular disease

- Pulmonary hypertension
- Vasculitis

Rheumatoid pneumoconiosis (Caplan syndrome)

Drug toxicity

Infection

Amyloidosis

Fibrobullous disease

occur in as many as 67% of patients, although some reports indicate a lower incidence (around 10%–20%).[4–6] This wide variation reflects differences in study design, study populations, and the way that lung disease in RA is defined. Many patients with RA have no clinical symptoms of respiratory disease despite radiographic or physiologic evidence of lung abnormalities, often leading to a misrepresentation of disease prevalence. In a study of 52 patients with RA, high-resolution computed tomography (HRCT) abnormalities were identified in 67.3% with only 40% of patients having respiratory symptoms.[4] In addition to respiratory involvement from RA, medication toxicity and secondary pulmonary infections are important sources of lung disease that must be considered in patients with RA.

Mortality is increased in patients with RA with extra-articular manifestations relative to those without extra-articular involvement, with cardiovascular disease, infection, and lung disease being the leading causes. Mortality in RA is greatest within the first 5 to 7 years after diagnosis and risk may be slightly higher in men than in women, with