

Chronic Disease and Rheumatology: a Continuous Challenge, a Hopeful Future

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Rheumatology is an internal medicine subspecialty which focuses on autoimmune diseases and inflammatory conditions affecting the musculoskeletal system. A majority of rheumatological conditions fall under the category of “chronic disease” and involve longitudinal patient care, which is often confounded by other biological and psychosocial comorbidities. Chronic diseases are defined as long-term medical conditions that can be treated, but not cured. According to the 2002 World Health Report “Reducing Risks, Promoting Health,” chronic diseases currently account for over 50% of all deaths and 43% of the global burden of disease.¹

Many common rheumatological conditions such as rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE), are chronic, lifelong conditions with no known cure. The prevalence of RA is 0.5-1% of the population,² and the incidence of SLE is 0.1%, as cited in literature.³ Compared to other chronic conditions such as coronary artery disease (CAD), diabetes, and certain malignancies, many rheumatological diseases are also diagnosed at a relatively younger age. One study, which identified 928 patients with SLE, found that the mean age at diagnosis was 35 years old.⁴ In contrast, CAD tends to affect older individuals, primarily over the age of 55.⁵ This younger age of diagnosis has implications on patients and further adds to the complexity of managing these chronic rheumatological conditions.

From the patient perspective, there are several physical and psychosocial consequences associated with having a chronic rheumatological condition. In a Finnish study which included 1095 patients with RA and 1530 healthy controls, the RA group was associated with a >7-fold increase in risk of disability compared to the general population.⁶ Beyond the impaired physical function caused by these diseases, many of these patients are also at an increased risk of developing other comorbidities. For example, patients with psoriatic arthritis have a higher incidence of cardiovascular disease,^{7,8} Sjogren’s syndrome confers a significantly increased risk of developing lymphoproliferative disorders,⁹ and patients with RA have an increased incidence of chronic obstructive lung disease.¹⁰ These chronic rheumatological conditions currently have no cure; therefore, these patients also have a life-long risk of developing various associated complications.

In addition to the significant impact that these diseases can have on an individual’s health, many chronic rheumatological conditions also lead to an earlier retirement and increased rates of disability leave. Young *et al.* followed RA patients over five years and found that up to one-third of individuals eventually stopped working owing to their disease.¹¹ The impact of this productivity loss is further compounded given that the diagnosis of these rheumatological diseases often occurs during an individual’s peak productivity and career. Unsurprisingly, there are significant societal and personal consequences for this patient

population. Patients may undergo shifts in their roles at home, which can contribute to economic and mental distress.

There are also profound psychological repercussions of having a chronic rheumatologic condition. Wolfe *et al.* published a study containing 11,704 patients with fibromyalgia (FM), SLE, RA, and non-inflammatory rheumatic disorders (NIRD). They found that depression was present in 15% of patients with RA or NIRD, 34% of patients with SLE, and 39% of patients with FM. This study also examined the EuroQol utility index (EQ-5D) score, a validated tool for assessing quality of life, in these patients and found significant impairments.¹²

For physicians, it can be challenging to manage a patient with a chronic rheumatological condition. Therapy often needs to be adjusted as patients age and go through various stages of life. With increased age, patients often develop further comorbidities that can preclude the use of certain medications. Moreover, many young females are often affected by rheumatological conditions during their child-bearing ages. A physician must collaborate with a patient to determine an optimal time for pregnancy, balancing a patient’s desire to have a family and controlling her disease activity. In SLE patients, for example, lupus nephritis can often flare with pregnancy and requires careful planning to ensure patient safety.¹³ Furthermore, certain mainstay medications used in the treatment of rheumatological diseases, such as methotrexate, are contraindicated in pregnancy and breastfeeding, which also complicates management.¹⁴

Despite the challenges faced by both patients and physicians, rheumatology remains an exciting and rewarding field. The chronicity of these conditions allows for the development of long-term relationships between patients and their rheumatologists. Rheumatologists get to know their patients and have the privilege of seeing these individuals from their initial diagnosis, to tackling the challenges of creating a family, to growing into old age together. Patients and physicians alike derive comfort and meaning from a strong therapeutic alliance and the opportunities to build such a relationship are plentiful in rheumatology because of the longitudinal care.

Furthermore, rheumatology is a rapidly progressing field with many active clinical trials examining new targets for therapy. Biologics such as tumor necrosis factor inhibitors and interleukin inhibitors, as well as small molecules such as Janus kinase inhibitors, have changed the trajectory of many rheumatological diseases. These advancements have also led to improvements in work presenteeism and reduced overall impact of disease. In a study which included 577 patients with axial spondyloarthritis, those treated with biologic therapies had significantly greater work productivity and reduced activity impairment.¹⁵ Furthermore, with these new medications, many patients are now enjoying prolonged periods of symptom-free disease.¹⁶ In fact, sustained remission in RA, off medications, is not uncommon. In a study that looked at 454 patients from the Leiden Early Arthritis Clinic and 895 patients from the British Early Rheumatoid Arthritis Study, 9-15% were able to achieve disease modifying anti-rheumatic

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drug-free remission.¹⁷

Another interesting and relatively recent development in rheumatology includes the introduction of biosimilars. There are currently 18 Food and Drug Administration approved biosimilars in the United States, with many more in active clinical trials.¹⁸ These new molecules, which have been manufactured using existing biologics as a reference product, have implications on patient management, medication affordability, and generation of further competition among pharmaceutical companies. A myriad of research, including a recent systematic review of 113 journal articles and 149 abstracts published in January 2019, is being conducted to review the safety, efficacy, and risk of switching patients who were previously stable on biologicals to biosimilars.¹⁹ This particular systematic review did not identify significant risks between a single switch from a reference biologic to a biosimilar; however, further data exploring this topic is required.¹⁹

Ultimately, although chronic rheumatological conditions can be a challenging diagnosis for patients and physicians, rheumatology remains an interesting and meaningful specialty. There continues to be a wealth of research in rheumatology, such that perhaps, someday, these diseases may no longer be chronic, but curable.

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