Rheumatoid Arthritis and the Value of Treatment

Rheumatoid arthritis (RA) is a chronic, systemic (potentially affects your whole body) inflammatory disorder that typically affects the small joints in your hands and feet. It is an autoimmune disease, where a person's immune system attacks joint tissues and potentially other body parts/organs for unknown reasons.[1] As a result, RA causes pain, inflammation, and eventually joint damage and malformation.[2] Rheumatoid arthritis can cause people to feel sick, tired, and feverish; it also affects joints symmetrically, where joint pain is felt on both sides of the body.[2] RA differs greatly from osteoarthritis (OA), which is a degenerative joint disease that only affects joint function.[2]

RA affects more than 17.6 million people worldwide, with more than 1.6 million people in the United States and 6.2 million people in Europe.[3, 4, 5] Rheumatoid arthritis can occur at any age. In fact, approximately 294,000 children under the age of 18 in the U.S. were affected by pediatric arthritis and rheumatologic conditions based on data between 2001-2004.[6] However, arthritis usually occurs after age 40, and it is much more common in women than in men. As expected, the study also showed that the incidence of RA rose with age, and peaked among people aged 65-74 years (all estimates were age-adjusted to 2000 U.S. population). Additionally, over the past half century, many studies have found mortality to be increased in patients with established RA in comparison with the general population.[7]

KEY TAKEAWAYS

RA affects more than 17.6 million people worldwide, with more than 1.6 million people in the United States and 6.2 million people in Europe. [3, 4, 5]

RA patients have worse functional status than those with osteoarthritis,[8] and are approximately six times more likely to incur medical charges than those without arthritis.[21]

Today, patients with RA generally experience greater health-related quality of life than those diagnosed with the disease 20 years ago.[27]

Health Burden of RA

Generally speaking, people with RA have worse functional status than those with osteoarthritis.[8] RA patients have been reported to experience more losses in function than people without arthritis in every domain of human activity including work, leisure and social relations.[8] Work loss among people with RA is the highest among service workers than among those in jobs with few physical demands.[9]

One study examining self-reported quality of life found that compared to those without arthritis, RA patients were 40% more likely to report poor or fair general health, 30% more likely to need help with personal care, and twice as likely to have a health-related activity limitation.[8]

RA is associated with common co-morbidities, including following:

- **Cardiovascular disease (CVD)**, in particular ischemic heart disease, is more common among people with RA.[10] The Rochester Epidemiology Project study found that people with RA were more likely to have hospitalizations because of myocardial infarction (MI) prior to diagnosis.[10] People with RA have greater evidence of subclinical atherosclerotic disease,[11] and risk of silent MI.[12] It is unknown whether the increase in

CVD mortality is due to the disease, the risk factor profile of RA (e.g., presence of hypertension, more likely to be smokers), or the effects of the drugs used to treat the condition.[11]

- **Infections** are another important and primary cause of death among people with RA and may be responsible for one-quarter of deaths among people with RA.[13] It is unclear whether this increased susceptibility arising from immunosuppression is due to the intrinsic immune dysfunction in people with RA, the effects of the drugs used to treat it, or both. [12]

- **Mental health conditions:** The high prevalence of anxiety and depression has been documented in several clinical populations of RA patients.[14, 15] Both conditions are associated with increased disease activity and decreased physical function.[8] Psychosocial factors have been identified as additional burdens on RA patients. Arthritis may require people to cope with pain, stiffness, fatigue, physical limitations, and in severe cases, physical deformities; managing these aspects of the illness influences people's ability to engage in meaningful, obligatory and discretionary activities, including the domains of work, family life, leisure, and social relationships.[16] Symptoms from arthritis can threaten the ability to participate in many life activities, and this may compromise psychological and social well-being.

In one large study researchers concluded that RA carries a risk of mortality that is approximately 38% greater than for the general population. The risk was even greater for women; with a 55% increased risk compared to women of the general population.[17]

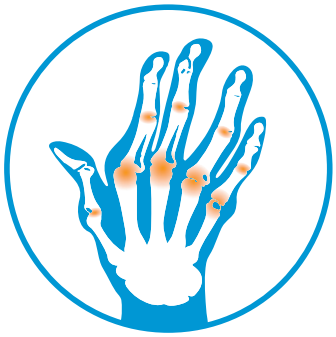
Economic Impact of RA

- In the U.K., the National Audit Office (NAO) estimates that rheumatoid arthritis costs the National Health Service (NHS) around £560 million a year in health care costs ($829 million in 2009 U.S. dollars), with the majority of this in the acute sector, and that the additional cost to the economy of sick leave and work-related disability is £1.8 billion a year ($2.67 billion in 2009 U.S. dollars).[18]

- Results from a 2011 U.K. study indicate that an increase in earlier treatment for RA patients could produce significant benefits in terms of productivity, with gains of £31 million ($46 million in 2009 U.S. dollars) for the economy due to reduced sick leave and lost employment. According to the U.K.'s NAO, 10% of patients with RA are treated within 3 months of symptom onset; its economic modeling suggests that increasing this to 20% would initially cause costs to the NHS to rise, but earlier treatment could become cost-neutral after nearly 9 years.[19]

- Employee burden: One U.S. study in 2010 found that the annual out-of-pocket costs of the employed population were $1,193 for patients with RA, with annual excess out-of-pocket costs of $510 per privately insured patient.[19]

- In the same study, the annual total costs for the privately insured and the Medicare populations were estimated to be $306 million and $600 million, respectively. Excess per-patient costs for uninsured RA patients were estimated to be $5,758, which, when weighted by the uninsured prevalence, aggregates to an annual total cost of $560 million.[20]



Recent estimates suggest that the per-patient, direct medical costs for RA can range from **$2,000 to $10,000 annually.**

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Medication Adherence and RA

- A 2012 study that investigated the impact of RA treatment shows medication adherence early on in treatment may reduce the costs associated with missed work and lost productivity resulting from an incidence of short-term disability.[20]
- Researchers also found that high cost sharing for RA medicines decreased patient adherence and increased incidence and longer duration of short-term disability leave. It is estimated that when employees with RA take their medication as directed, their lost productivity drops by 26 percent.[21]
- An Integrated Benefits Institute study of 17 employer groups found that if all 5,483 employees with RA who were previously non-adherent to RA medicines began to fill their prescriptions at the same rate as those who did adhere, their employers would save $4.4 million in lost productivity costs ($3.2 million from reduced short-term disability incidence, and another $1.2 million from declining disability duration).[22]

Evolving Pharmaceutical Treatment Options and Strategies in RA

Over the last several decades, research in several areas important to RA has greatly increased our understanding of the immune system, genetics, and biology and, as a result, scientists are now able to treat RA in new ways that were not possible in the past.1 Historically, treatment for RA started with corticosteroids/nonsteroida anti-inflammatory drugs (NSAIDs), then slowly progressed to non-biologic (small molecule) disease-modifying anti-rheumatic drugs (DMARDs) and finally to biologic DMARDs.[23]

Treatment guidelines have changed with the increasing array of biologic DMARDs available. Today, a more aggressive treatment approach is recommended than in the past; with non-biologic DMARDs initiated within three months of diagnosis to reduce disease activity and prevent joint deformity.[25] In 2008, the American College of Rheumatology updated RA medical management guidelines;[25] describing which biologic DMARDs are indicated for specific RA disease profiles (e.g., features such as disease activity, signs and symptoms, and prognosis). These guidelines also recommend that treatment with non-biologic and biologic therapies should be accompanied by non-medical interventions including physical and occupational therapy and antiinflammatory pharmacologic interventions (e.g., treatment with NSAIDs, intra-articular and oral glucocorticoids).[25]

Treatment paradigms in RA management continue to evolve, and those changes have been attributed to a number of factors, including the effectiveness of novel DMARDs and biologic agents.[24] In 2010, another set of guidelines addressed the principles of "treating to target" in RA. These guidelines contain 4 overarching principles that form the basis of this treat-to-target paradigm. These principles stress the importance of shared decision making between patient and rheumatologist; maximizing long-term health related quality of life; reducing inflammation; and measuring disease activity and adjusting therapy accordingly to optimize outcomes. There are numerous RA activity measuring tools available in clinical practice today, each designed to monitor disease activity to achieve the best possible outcome for patients; helping rheumatologists to treat-to-target.

Benefits of Improved Treatments

Today, patients with RA generally experience greater healthrelated quality of life than those diagnosed with the disease 20 years ago. According to one study spanning from 1990 to 2011, results showed a significant reduction in patients who experienced depressed mood, anxiety, and physical disability.[25] Researchers attribute new treatment strategies shown in clinical trials to lower levels of disease activity, improvement in psychological well-being, and physical functionality. In some recent clinical trials, work disability has been included as an outcome measure. Intensive combination DMARDs and biologic therapies have been associated with beneficial effects on this measure. One study showed that disease remission can be achieved using traditional DMARDs, and in those patients who achieved remission within 6 months, none were work disabled at 5 years.[26] The number of newly diagnosed RA patients who are disabled after the first four years of treatment has been reduced by half compared to 20 years ago. These positive developments have been attributed to increased availability of improved treatment options and treatment strategies.[27]

As RA treatment strategies improved from the late 1990s to the early 2000s, some physicians began to measure changes in RA symptoms by using criteria called the American College of Rheumatology (ACR) score. The ACR score was initially limited to measuring a maximum of 20 percent improvement but, by 2007, it was increased to include 50 percent and 70 percent improvement (ACR 50 and ACR 70) due to the initial threshold being too low. This shift reflected the gains made in RA treatment attributed to new and improved therapeutic agents and their role in combination therapy.[27]

RA treatment methods have significantly evolved from targeting RA symptoms to reducing disease activity. Research and development efforts have effectively reduced the burden of RA and its socioeconomic impact by redefining and advancing care. Still, unmet medical need exists, and some patients fail to meet their treatment goals.[28] As research and development continues to evolve and newer therapies are made available, we can look forward to addressing the needs of more RA patients, and the positive effects they have to the individual and to society.

Patient Perspectives

Elizabeth Shepley, a mother of two from Shillington, PA was just 25 years old when she was diagnosed. After about 3 years, she decided to get help.

> "It may be out of my control that I have RA, but it is within my control to treat it… and to function, as I deserve to function."
>
> – Elizabeth Shepley

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Issued by Global Policy and International Public Affairs

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November 2016