Pharmaceutical Care Models, Tools for Treating Patients with Rheumatoid Arthritis

January 19, 2016 • By Louise Grech, BPharm (Hons), MPhil, MRPharmS, Victor Ferrito, BSc, MSc, PhD, CSci, Liberato Camilleri, BEd, MSc, PhD, Anthony Serracino Inglott, BPharm, PharmD, MRPharmS, & Lilian M. Azzopardi, BPharm (Hons), MPhil, PhD, MRPharmS

Rheumatoid arthritis (RA) can be defined as a chronic autoimmune systemic inflammatory condition characterized by symmetrical polyarthritis. Typically, patients present with pain, stiffness and warmth of the affected joints. The condition can result in extra-articular features, adding to disability, and may eventually lead to premature death, especially if not treated early and appropriately.1,2 Over the past 20 years, the drugs available for treating RA have increased drastically, leading to revised pharmacotherapy strategies. As Bijlsma points out in an article published in 2010, the main changes in RA management were due to new drugs, namely biologics. In turn, these drugs led to improved treatment strategies and a joint European League Against Rheumatism (EULAR)–American College of Rheumatology (ACR) work group, which devised the "treat to target" concept.3-5 The biologic era led to the availability of biosimilars, which are affecting the pharmacoeconomic aspect of the financial expenses of many national health services.6-8

Revolutionized Treatment Strategies

Pharmacological therapy for RA aims to control not only the symptoms of inflammation characteristic of RA but, more importantly, disease progression and remission, if possible. In fact, this is the underlying stem of treat to target. The traditional pyramidal approach that was the mainstay treatment strategy until the late 1990s was based on initiating analgesics and anti-inflammatory agents as first-line drugs.9 If symptoms of RA remained uncontrolled or if there was radiological evidence of progression of the disease, disease-modifying anti-rheumatic drugs (DMARDs), such as methotrexate, sulfasalazine, sodium aurothiomalate hydroxychloroquine, penicillamine and azathioprine, would be prescribed as second-line drugs. Combination therapies of DMARDs were used in case of continued disease progression and corticosteroids were considered third-line agents.10

The treatment strategy was to hold back the DMARDs, which at the time were considered too toxic for routine use, until disease progression dictated a move up the pyramid. Increased awareness that the progression of RA results in overall decreased quality of life in patients and increased financial burden on the health services led to an inverted pyramidal approach. Traditional DMARDs, such as methotrexate, have become first-line agents and, in accordance with American and European established recommendations, patients with RA are to be prescribed DMARDs within three months of diagnosis.4,11 Analgesics and steroids are used when necessary to control pain and achieve pain-free lifestyles, especially when the effect of the DMARD has not yet kicked in or there is need for an escalation of therapy.

Biologic Drugs & Biosimilars: Implications of Safety & Financial Constraints

Studies into the cellular level of the pathogenesis of the inflammatory process of RA have highlighted the implications of pro-inflammatory markers, such as tumor necrosis factor (TNF) alpha, interleukin (IL) 6 and IL-1.12 The identification of such inflammatory markers has led to the development and subsequent launch of biologic drugs targeting specific pro-inflammatory markers implicated in the inflammatory cascade process.13-16 Over the past decade or so, the place of biologics within pharmacotherapy in the management of RA has been proved through clinical trials, several postmarketing studies and literature reviews.17-19 To this effect, both EULAR and the ACR advocate the use of biologic DMARDs in patients with RA who fail to respond to traditional DMARDs.4,20

Initially, biologic drugs were prescribed with caution. The development of national biologics registers aided the collection of data with respect to safety issues, such as adverse drug reactions, risk of infections, malignancy and neuropathy. Subsequently, studies and recommendations on the use of biologic DMARDs eventually led prescribers and pharmacists to the conclusion that if the necessary prescreening and monitoring during treatment are undertaken, the highly effective biologic DMARDs can be safely used within a therapy plan to improve patient quality of life.21-25

A major constricting factor with financial implications on any national health service is the cost of these biologic DMARDs, which gives rise to the question: Is there a price to pay for quality of life? Pharmacoeconomic studies in relation to biologic DMARDs and the quality of life of patients with RA have shown that biologic DMARDs are cost effective if used early to prevent irreversible disease progression.26,27 Recently, the introduction of biosimilars within the rheumatology drug armamentarium has softened the cost constraint, but has not resolved the issue.28

The Role of the Pharmacist

What is the role of the pharmacist within a rheumatology pharmaceutical care model against a framework of treat to target, early referral for appropriate pharmacotherapy, safety and monitoring issues and, finally, financial constraints? In an article in The Rheumatologist, Flick and Farrell highlight the pharmacists' contribution within a multidisciplinary team to facilitate a safe, efficient and effective system for rheumatology patients who require constant monitoring.29 Pharmacists are in a central position to identify pharmaceutical care issues and engage in clinical decision making within a pharmaceutical care model with the aim of ensuring optimum patient care and improved quality of life for patients who have RA.30-34

How can pharmacists integrate a pharmaceutical contribution into an evolving multidisciplinary model of care that adds to the continuous improvement of the standard of care delivered to patients with RA?

What tools are required to aid pharmacists in offering the best service that underpins quality of care as the patient moves across the primary and secondary care settings?

The RhMAT RA Medication Assessment Tool

The concept of medication assessment tools introduced by the University of Strathclyde group is a way to move forward in pharmaceutical care models.35 Medication assessment tools are evidence-based instruments designed to evaluate prescribing and monitoring adherence to established guidelines in specific conditions. Validated medication assessment tools have been developed for a number of chronic conditions, such as heart failure and coronary disease, diabetes mellitus, pain management in cancer patients and asthma.36-40 These tools offer a systematic approach to identifying pharmaceutical care issues and gaps in established guidelines, which can be resolved within a multidisciplinary team. Against the background of the developments in rheumatology, we have undertaken a study to develop an innovative RA medication assessment tool (RhMAT) for clinical use.

Development of the RhMAT

The RhMAT is designed in the form of a table, which allows the researcher to easily document the necessary response. The RhMAT consists of 11 separate sections, addressing:

Diagnosis of RA;

Use of analgesics and non-steroidal anti-inflammatory drugs;

Use of methotrexate;

Use of sulfasalazine;

Use of hydroxychloroquine;

Use of leflunomide;

Use of sodium aurothiomalate parenteral preparation;

General screening for biological therapies;

Use of biological therapies;

Use of glucocorticoids; and

Remission cases.

Each section consists of an average of five criteria (SD=1.95). The respective references to the criteria included in the RhMAT are documented in a separate column at the far right of the table design. Each

criterion is judged for applicability and adherence. If the criterion is applicable, a “yes” or “no” answer is required. If the criterion is not met, the response would be “no.” If the “no” response is justified according to a logistic reason, then it is a justified no (NoJ) and the justification is given in the comments section. NoUJ signifies that the “no” is unjustified. If criterion adherence cannot be determined, due to incomplete data that cannot be collected through a patient’s medical case notes or through a patient interview, the response to the criterion should be marked as insufficient data (ID). Guidelines incorporated within the RhMAT were compiled to explain the procedure to complete the table and allow standardization and uniformity in the practical scenario.

The RhMAT was developed using evidence-based RA guidelines, recommendations and standards from the ACR, EULAR, the British Society for Rheumatology, the National Institute for Health and Care Excellence, and the Scottish Intercollegiate Guidelines Network. The Summary of Product Characteristics for each drug included in the RhMAT were used as references for criteria related to pharmacological properties. The developed RhMAT was subjected to a focus group review that assessed applicability of the tool to the practical scenario, presentation, robustness and validity of the data provided.

The RhMAT incorporates a mathematical equation that yields the adherence rate to the criteria included in the tool. The adherence rate to the RhMAT is calculated as the sum of the “yes” responses expressed as a percentage of the total number of applicable cases, whereby the applicable cases constitute the number of “yes” responses, the NoUJ responses and the ID responses. The overall RhMAT incorporating all 11 sections can be calculated, as can the adherence rate to each of the separate applicable sections, depending on the drugs prescribed for individual patients. Thus, if a patient is receiving methotrexate and sulfasalazine, the pharmacist can calculate the overall RhMAT adherence rate in addition to the adherence rate for methotrexate and sulfasalazine separately.

The RhMAT is currently being used within a clinical setting. Results indicate that a pharmacist can implement this tool in an outpatient clinic setting, taking an average of 15 minutes to complete, to capture pharmaceutical care issues and pharmacotherapy gaps within the management of patients with RA. The RhMAT was implemented for use in a sample population of 78 patients with RA and run twice at approximately 12-month intervals. The total adherence rate achieved at baseline was 81.7%. This further increased to 85.2% at 12 months, giving a statistically significant rise (Wilcoxon signed rank test p value <0.05). Therefore, following the identification of gaps through the RhMAT at baseline, the pharmacist was able to clinically discuss these gaps, which resulted in improved adherence.

Conclusion

The innovative RhMAT is a tool that uses evidence-based guidelines specific for RA. The tool is practical for use in a clinical setting within a pharmaceutical care model. The major clinical contributions of the RhMAT are its ability to detect the degree of adherence of each individual patient’s pharmacotherapy plan to evidence-based guidelines and its ability to pinpoint the actual gaps leading to the degree of and

identified non-adherence. Therefore, the RhMAT can be used to close off gaps and improve the quality-of-care service offered to patients, enhancing patient safety and quality of life.

Louise Grech, BPharm (Hons), MPhil, MRPharmS, is senior clinical pharmacist in the Clinical Pharmacy Practice Unit at Mater Dei Hospital and an assistant lecturer in the Department of Pharmacy, Faculty of Medicine & Surgery at the University of Malta.

Victor Ferrito, BSc, MSc, PhD, CSci, is a professor in the Department of Pharmacy, Faculty of Medicine & Surgery at the University of Malta.

Liberato Camilleri, BEd, MSc, PhD, is an associate professor and head of the Department of Statistics and Operations Research, Faculty of Science at the University of Malta.

Anthony Serracino Inglott, BPharm, PharmD, MRPharmS, is a professor in the Department of Pharmacy, Faculty of Medicine & Surgery, University of Malta.

Lilian M. Azzopardi, BPharm (Hons), MPhil, PhD, MRPharmS, is head of the Department of Pharmacy, Faculty of Medicine & Surgery at the University of Malta.

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