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Patient Preferences for Biologic Agents in Rheumatoid Arthritis: A Discrete-Choice Experiment

Federico Augustovski, MD, MSc, PhD[1,2,*], *Andrea Beratarrechea, MD, MSc*[1,2], *Vilma Irazola, MD, MSc*[1], *Fernando Rubinstein, MD, MSc*[1,2], *Pablo Tesolin, MD*[2], *Juan Gonzalez*[3], *Verónica Lencina, MD*[4], *Marina Scolnik, MD*[2], *Christian Waimann, MD*[4], *David Navarta, MD*[2], *Gustavo Citera, MD*[4], *Enrique R. Soriano, MD, MSc*[2]

[1]*Institute for Clinical Effectiveness and Health Policy (IECS), Buenos Aires, Argentina;* [2]*Hospital Italiano de Buenos Aires, Buenos Aires, Argentina*
[3]*RTI Health Solutions, Raleigh, NC, USA;* [4]*Instituto de Rehabilitación Psicofísica (I.R.E.P), Buenos Aires, Argentina*

ABSTRACT

Objectives: To assess patients' preferences for rheumatoid-arthritis treatments with biologic agents using a discrete-choice experiment. **Methods:** A discrete-choice experiment was conducted with adult rheumatoid-arthritis patients who had never been treated with biological agents from two university hospitals—public and private—in Buenos Aires, Argentina. We evaluated preferences for seven treatment attributes (with two to three levels each): effectiveness, mode of administration, frequency of administration, local and systemic adverse events, severe infections, and out-of-pocket costs. A probit regression model was used to analyze the relative importance of rheumatoid-arthritis treatment attributes. We estimated attributes' relative importance and their 95% confidence intervals. **Results:** Survey responses from 240 patients with rheumatoid arthritis receiving conventional disease-modifying antirheumatic drugs were included in the study. All tested biological agents' attributes significantly affected the choice of treatment. Attributes' relative importance in decreasing order was the following (mean, confidence interval 95%): cost, 0.81 (0.69–0.92); systemic adverse events, 0.66 (0.57–0.76); frequency of administration, 0.61 (0.52–0.71); efficacy, 0.42 (0.32–0.51); route of administration, 0.41 (0.30–0.52); local adverse events, 0.40 (0.31–0.49); and serious infections, 0.29 (0.22–0.37). **Conclusions:** Different treatment attributes had a significant and different influence in rheumatoid-arthritis patients' choice of biological agents. This type of study can not only inform about patients' preferences but also about the trade-offs among different possible treatments or process-related attributes.

Keywords: adverse effects, arthritis, disease-modifying antirheumatic drugs, patient preferences, rheumatoid/drug therapy/*psychology.

Introduction

Rheumatoid arthritis (RA) is a chronic, systemic, inflammatory autoimmune disease and a major cause of disability [1]. Recent studies have shown that 50% of the patients with RA are disabled within 10 years of the onset of the disease and survival is reduced [2].

The advent of biologic agents (BAs) has had a significant impact on the strategies followed to treat RA. While early initiation of disease-modifying antirheumatic drugs [3] and biologic therapy has demonstrated a prolonged benefit on RA progression [4–6], BAs have been shown to be highly effective in the treatment of RA [7–9]. BAs, however, have also been associated with increased risk of toxicity and adverse events. The combination of increased effectiveness and treatment-related adverse events in therapies involving BAs highlights the importance of valuing the different aspects of RA treatments from a patient's perspective.

Information about patients' preferences for RA treatment attributes can be relevant in several ways. In the short run, better understanding of patients' preferences can help health professionals improve disease management by identifying patients' most salient concerns [10]. Addressing patients' concerns with treatment can potentially improve adherence and satisfaction with treatment [11]. In the long run, patients' preferences can guide the development of future drugs to help fulfill patients' wants and needs. From a regulatory perspective, understanding the relative importance of the benefits and risks associated with RA treatments can help decision makers evaluate therapies that provide higher/lower efficacy and risks than does the current standard of care.

Studies in other disease areas have shown that patient and physician priorities can differ, thereby emphasizing the need to incorporate individual patient values into treatment decisions [12–14]. Studies have also shown that treatment decisions among patients with RA depend not only on personal values for condition-related health outcomes but also on other aspects of care such as how and where the drugs are administered, or their cost [15,16].

Treatment decisions related to the use of BAs for RA remain an empirical question. Choices are based on clinical severity

* *Address correspondence to:* Federico Augustovski, Ravignani 2024, Ciudad de Buenos Aires, Buenos Aires CP 1414, Argentina
E-mail: faugustovski@iecs.org.ar.

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or disease activity, and individual patient preferences such as concerns over adverse events, physical status, mode of administration, and costs. Although different treatment options of BAs are available, the effective use of BAs is limited in some countries [17–19].

The availability of new BAs has increased the total number of treatment options existing for this condition. Consequently, the decision-making process in RA is now much more complex. So, governments and other payers are increasingly interested in public and patient preferences to inform decision making to improve adherence with clinical/public health programs.

Among different approaches to evaluate patient preferences, discrete-choice experiments (DCEs) are gaining wide interest, because they impose relatively few assumptions and ask respondents to choose between sets of realistic options [20]. A main advantage of a DCE is that it can derive subjects' preferences for different attributes of interventions in a quantitative way. With this approach researchers can not only consider those treatment attributes specifically related to health such as efficacy and safety but also those that are process related (i.e., treatment administration at hospital or at home, waiting time, distance). In addition, DCEs can be used to study the expected uptake of new products and policies [21–23] and value health outcomes for economic evaluations [24,25].

Incorporation of explicitly derived patient values into the decision-making process is particularly important in the election of BA treatment in RA: although there are minor differences in the efficacy between currently available drugs, BA treatment options differ in other attributes such as frequency, mode of administration, or their costs.

The main purpose of this study was to evaluate specific preferences among biological drug attributes as well as their relative importance among Argentinean RA patients by using a DCE approach.

Specific objectives of the study were to 1) identify the extent to which the attributes of a treatment (e.g., efficacy, mode of administration, adverse events, and costs) affect patients' choice of treatment and 2) determine the hierarchical importance of these attributes.

Patients and Methods

Data Collection

Data collection was carried out in Buenos Aires, Argentina, both at a large public teaching hospital, Instituto de Rehabilitacion Psicofisica, and at a large private University hospital, Hospital Italiano de Buenos Aires. The local institutional review boards of both participating sites approved the study.

Table 1 – Attributes, definitions, and levels used for the construction of the discrete-choice experiment exercise.

Attribute	Conceptual definition	Levels
△ Patient Global Assessment of disease activity (PGA)	Clinical response as a mean change from baseline before and after treatment. Baseline PGA: 70	1. △ 40 mm 2. △ 30 mm 3. △ 20 mm
Mode of administration	Is the path by which a drug is delivered	1. Oral 2. Subcutaneous 3. Intravenous
Frequency of administration	Dose frequency	1. Every 10 mo 2. Every month 3. Every week 4. Every day
Local adverse events	An unwanted local effect caused by the administration of a drug	1. No risk 2. 15 patients out of 100 3. 40 patients out of 100
Generalized adverse events	An unwanted general effect caused by the administration of a drug	1. No risk 2. 10 patients out of 100 3. 30 patients out of 100
Serious infections	Any infections that might require hospitalization for treatment and discontinuation of BA	1. 1 patient out of 100 2. 5 patients out of 100
Costs	Monthly out-of-pocket costs of the hypothetical BA option	1. No out-of-pocket cost 2. $500 (Argentine pesos) per month 3. $1500 (Argentine pesos) per month

BA, biologic agent.