Evaluation of a prospective cohort event monitoring model for patient-reported adverse drug reactions attributed to biological DMARDs: Validity of the patient-reported information and representativeness of the participants

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Background
To gain knowledge on the prevalence, course and treatment of adverse drug reactions (ADRs) attributed to biological DMARDs (bDMARDs) and the experienced impact of ADRs on patients, an ADR-focused online questionnaire system was developed by Netherlands Pharmacovigilance Centre Lareb (Dutch Biologic Monitor).

Objective
• Assessment of the quality of patient-reported medical information in the Dutch Biologic Monitor.
• Evaluation of the representativeness of the sampled participants.

Method
Consecutive adult patients using a bDMARD for an immune-mediated inflammatory disease were included in eight Dutch centres. For this substudy, data of 550 patients with inflammatory rheumatic diseases was used. Patient-reported bDMARD, indication and combination therapy were verified for patients that permitted access to their electronic health record (EHR) using percentage agreement and/or Cohen’s kappa (n=480). Population representativeness was tested for the entire substudy population by comparing age, gender and prescribed bDMARD to the centres’ reference populations using Mann-Whitney U test, Chi-Square Goodness-of-Fit or Fisher’s exact test with Monte Carlo simulation.

Results

Quality of patient-reported medical information
The active substance and brand name of the prescribed bDMARD was correctly reported by 459 patients (95.8%), as shown in Table 1. Eleven patients (2.3%) reported an incorrect active substance and brand name, whereas nine (1.9%) had only mistaken the brand name. Agreement between patient-reported and clinician-reported information was strong for the reported indications and moderate for combination therapy.

Representativeness of the substudy population
The substudy population was representative for the reference populations from which they were sampled based on gender (38.4% vs. 38.8% male; χ²(1, n=550)=0.038, p>0.05) and bDMARD use (both subpopulations p>0.05). Median age was statistically not representative (58.0 vs. 56.0 years; U=962872, p=0.04, Fig. 1), since the median age of male participants originating from subpopulation 1 was higher compared to the reference population (U=18322.5, p=0.002).

Table 1: Comparison between the patient- and clinician-reported prescribed clinical information. Data is represented as amount of patients (n, %) or the level of interrater agreement (κ).

<table>
<thead>
<tr>
<th></th>
<th>Agreement</th>
<th>No agreement</th>
<th>Interrater agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>Level (κ)</td>
</tr>
<tr>
<td>bDMARD</td>
<td>459 (95.8)</td>
<td>20 (4.2)</td>
<td>N/A</td>
</tr>
<tr>
<td>Indication</td>
<td>434 (90.4)</td>
<td>46 (9.6)</td>
<td>Strong (0.832)</td>
</tr>
<tr>
<td>Combination therapy</td>
<td>346 (79.7)</td>
<td>88 (20.3)</td>
<td>Moderate (0.725)</td>
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</table>

Figure 1: Age distributions of participating inflammatory rheumatic disease patients compared to the reference population.