A compliance questionnaire could discriminate among patients for drug-taking behaviour and correct dosing in rheumatic diseases


Clinical impact ratings GP/FP/Primary care ★★★★★★★ Internal medicine ★★★★★★★★

Rheumatology ★★★★★★★

In patients with rheumatic diseases, how well does the compliance questionnaire rheumatology (CQR) predict compliance with taking medications and correct dosing compared with an electronic medication event monitoring system (MEMS)?

METHODS

Design: cohort study to validate a previously derived self-administered questionnaire.

Setting: outpatient rheumatology wards of 3 hospitals in the Netherlands.

Patients: 127 patients (mean age 61 y, 57% women) who had rheumatoid arthritis and were taking sulphasalazine, methotrexate, diclofenac, or naproxen; polymyalgia rheumatica and were taking prednisone or prednisolone; or gout and were taking colchicine, allopurinol, or benz bromarone. The drugs had to be for at least 3 months prior to being included at the start of the study.

Prediction guide: patients completed the CQR in the first week after starting medication. The CQR contained 19 questions on drug-taking behaviour (scores range 0 [complete non-compliance] to 100 [complete compliance]). Patients received a MEMS pill bottle, which was filled by their pharmacist. The MEMS cap contained electronic circuitry that recorded the time and date of each opening and closing of the pill bottle. At 6 months (12 mo for gout), patients returned the MEMS pill bottle.

Outcomes: drug-taking compliance (percentage of prescribed doses taken), and correct dosing (percentage of days on which the correct number of doses was taken). Satisfactory compliance was defined as drug-taking compliance or correct dosing > 80%.

Discriminant analysis of the compliance questionnaire rheumatology in detecting poor drug-taking compliance and dosing in rheumatic diseases

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (CI)</th>
<th>+LR (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug taking compliance &lt; 80%</td>
<td>62% (57 to 67)</td>
<td>95% (92 to 97)</td>
<td>11.6 (6.7 to 20)</td>
</tr>
<tr>
<td>Drug taking compliance &lt; 50%</td>
<td>63% (57 to 68)</td>
<td>97% (96 to 99)</td>
<td>24.1 (7.9 to 73)</td>
</tr>
<tr>
<td>Correct dosing &lt; 80%</td>
<td>89% (85 to 92)</td>
<td>70% (65 to 75)</td>
<td>2.9 (1.5 to 5.9)</td>
</tr>
<tr>
<td>Correct dosing &lt; 50%</td>
<td>62% (57 to 67)</td>
<td>94% (91 to 96)</td>
<td>9.9 (7.0 to 14)</td>
</tr>
</tbody>
</table>

+LR = positive likelihood ratio; -LR = negative likelihood ratio.

**Commentary**

Aking patients directly but non-judgmentally about their medication-taking is the most useful way to assess compliance in clinical practice. Over the past 30 years, studies using different questionnaires and different methods of validation have consistently shown that the sensitivity of patient self-reports of non-compliance is low, but the positive predictive value of such reports is high. In other words, patient reports of non-compliance are generally accurate, but many patients who are not compliant will not say so. The findings of de Klerk et al confirm this observation.

The use of electronic medication monitoring, the most accurate single measure of compliance, is a strength of their study, but the 12 minutes required to complete the CQR and the need for weighting of responses to enhance its predictive value are barriers to its clinical use. The finding that 33% of those offered the CQR did not provide analyzable responses raises a concern about potential bias, since people non-compliant with surveys about their compliance may also be non-compliant with their pills. Additionally, the data were collected within 2 weeks of initiating a new rheumatological drug, so that these patient responses may be most predictive of their early decisions about whether to continue the drugs rather than their long-term persistence with treatment.

Clinicians and researchers should remember the adage that “accurate measurements of compliance are not easy; easy measurement of compliance is not accurate.”


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