Introduction

Specific pain symptoms differ between patients with neuropathic and those with non-neuropathic pain [1]. The combination of selected symptoms and signs (negative and positive somatosensory changes) is reported to have a high discriminant value for identifying neuropathic pain [2–5].

Based on this knowledge, screening tools for distinguishing neuropathic from non-neuropathic pain have been developed and validated: the Leeds Assessment of Neuropathic Symptoms and Signs [LANSS, 2], the Neuropathic Pain Questionnaire [NPQ, 3], the painDETECT Questionnaire [PD-Q, 4], and Douleur Neuropathique 4 questions [DN4, 5]. All these questionnaires are useful screening tools and helpful in the identification of neuropathic pain [1].

PD-Q has been widely used in the painDETECT project register, which is an open pain register. Data from >225,000 patients have been collected. The most common pain type in this database is chronic low back pain.

Unlike clinical trials, open pain registers are real-life data collections. The physician can use this data for several purposes (diagnostic support, physician's letters, documentation, etc.). A research group (DFNS/DFRS) is responsible for data analyses and for reporting the scientific outcome.

The original PD-Q validation did not include ‘test–retest’ because of the necessity to suspend or interrupt pain treatment. However, a study was performed validating paper NRS vs. electronic VAS measurement, showing the equivalence of measurements of pain and PD-Q score within predefined limits. However, with the narrow time window (1–3 h) a memory effect could not be excluded [6].

Study goal

The PD-Q is often used as a follow-up instrument in neuropathic pain therapy, although not validated for such purposes. We therefore investigated the test–retest performance of PD-Q items and the derived score.

Methods

Design

We performed an analysis of data already sampled within the painDETECT project using consecutive visits of patients. Prospectively planned criteria were applied in order to identify a population with stable condition, as is required for test–retest assessment [7–9].

- Patients with back pain
- Patients with at least 3 visits to the physician
- Time since first capture in database: ≥6 months
- Time between two consecutive visits in this analysis: 7–21 days
- Differences for current, maximum and average pain measured on a 100-mm VAS scale between the two visits: ±5 mm

Data

The patients fill in questionnaires on an electronic device in the doctor’s office. The questionnaires and medical history of the patients are transferred to a central data base.

Statistical analysis

It was verified that the selected sub-population was representative of the whole study population by comparing mean values for pain and PD-Q measures of the patients in this analysis with those of all patients with back pain.

The following measures of test–retest performance were calculated:

- PD-Q Items (each measured as a 5 point NRS), PD-Q categories (pos./neg.)
- Intra-class correlation (ICC)
- Pearson's r
- Weighted kappa

PD-Q score (ranging from 0 to 38) was assessed using several purposes. We therefore investigated the test–retest performance of PD-Q items and the derived score.

Results

Data from 94 patients fulfilled the narrow criteria; mean duration between visits was 15 days (Table 1). There was no relevant deviation of mean PD-Q score or pain severity in comparison with the whole study population (results not shown). The measures (Table 1) were in the range of typical results for pain questionnaires [9].

Conclusions

The very large database allows retrospective validation of properties of the PD-Q questionnaire as long as the criteria are prospectively defined. The validation of test–retest properties has shown that the PD-Q is reliable and can be used for follow-up.

Further investigations will be necessary to determine the clinical relevance of changes in PD-Q scores.

In memory of our friend and colleague Uwe Schmidt, who helped to develop the PD-Q

Table 1: Results for test–retest assessments for PD-Q score

<table>
<thead>
<tr>
<th>PD-Q items</th>
<th>PD-Q score</th>
<th>PD-Q categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICC</td>
<td>0.65 ... 0.80</td>
<td>0.87</td>
</tr>
<tr>
<td>Pearson’s r</td>
<td>0.66 ... 0.80</td>
<td>0.87</td>
</tr>
<tr>
<td>Weighted kappa</td>
<td>0.50 ... 0.66</td>
<td>–</td>
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</tbody>
</table>

**Figure 1: BA plot for PD-Q score**

**Figure 2: PD-Q score Visit 1 vs. Visit 2**

References