Development of a Clinician-reported Screening Tool to Identify Patients with Parkinson's Disease Inadequately Controlled on Oral Medications

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BACKGROUND

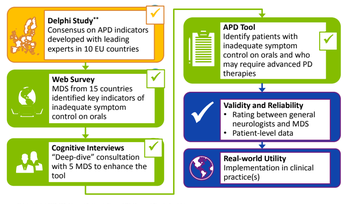
- Parkinson's disease (PD) patients can develop motor complications refractory to treatment within 3–5 years after dopaminergic treatment (Kulisevsky et al. 2013).
- Developing indicators that can assist clinicians to identify patients inadequately controlled on oral medications or eligible for advanced PD therapies is important for routine clinical practice (Schmidt et al. 2017). Many scales that describe disease progression are not commonly used in clinical practice.
- A Delphi study was conducted with an international expert panel of 16 movement disorder specialists (MDS). The Delphi study involved three rounds for achieving convergence of opinion on indicators for identifying suspected advanced PD (APD) and patients eligible for advanced therapies (Antonini et al. 2015).

OBJECTIVE

- The objective is to develop a screening tool that can help healthcare providers (HCPs): (1) identify PD patients inadequately controlled on oral medications; and (2) determine which PD patients may be eligible for advanced PD therapy.
- Figure 1 details the study steps, including: Delphi study to derive initial list of indicators, Phase 1 web survey, cognitive interviews and APD tool development, Phase 2 validity and reliability testing and real-world implementation.

This poster presents Phase 1 study results, including the MDS web survey and cognitive interviews, as well as a description of the preliminary draft tool.

Figure 1. Study Steps



METHODS: PHASE 1

- Building on the Delphi study, a cross-sectional web survey was sent to 19 MDSs from 15 countries (Denmark, Greece, Austria, Germany, Netherlands, Israel, Finland, Norway, Turkey, France, the United Kingdom [UK], Romania, Spain, Italy, and the United States [US]) to rate the clinical relevance and importance of 10 motor symptoms (MS), eight non-motor symptoms (NMS), and six functional impacts (FI) identified through a Delphi consensus process conducted in 2015.
- For all of the indicators, respondents were also asked if the symptoms: 1) could improve with orals; (2) were interpreted similarly across clinical expertise; and (3) could be assessed in a regular clinical visit with ease.
- MDSs ranked the most important MS, NMS, and FI indicators for inadequately controlled on oral PD medications and eligible for advanced PD therapy.
- Five (31%, n=16 total) of the MDSs who completed the online survey were included in one-on-one interviews to elicit additional information on the draft screening tool. The interviews assessed the clarity of each symptom item and potential clinically meaningful and relevant response scales for the items. During the interviews, MDSs were asked about their ranking selection and rationale for selecting the most relevant and important items.

STATISTICAL ANALYSES

- Responses were categorical; percentages and N's for each possible response option were calculated across symptoms. Means (SD), medians, and ranges were calculated for indicator ranking questions. Descriptive data around the assigned ranks were examined, and then the rankings were evaluated in conjunction with the categorical data. Median rank for each indicator was calculated. Indicators were rank ordered by the increasing ranks.
- An a priori threshold criteria was used to retain the most relevant indicators.

RESULTS

- Demographic characteristics of the 16 MDS survey respondents were as follows: 14 from European Union (EU), Israel, and Turkey; and two from the US; mean (SD) years working with PD patients was 21.6 (5.9); 81% reported working with a specialized PD clinical care team.
- The two highest ranked indicators for MS, NMS, and FI for inadequately controlled on oral PD medications are captured in Figures 2a, 3a, and 4a.
- The two highest ranked indicators for MS, NMS, and FI for eligible advanced PD therapy are captured in Figures 2b, 3b, and 4b.
- Inter-rater reliability between MDSs for importance ranking of MS, NMS, and FI indicators of inadequate control on oral medications was 0.70, 0.26, and 0.17, respectively. MDS inter-rater reliability for importance rankings of MS, NMS, and FI indicators for advanced PD therapy was 0.70, 0.55, and 0.30, respectively.
- The highest rated indicators expected to improve with advanced PD therapy were troublesome MS fluctuations, MS complications, and NMS symptoms.

RESULTS (CONTINUED)

Figure 2a. MS Ranking - Indicators for Inadequate Control on Oral PD

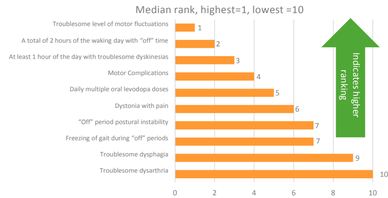


Figure 2b. MS Ranking - Indicators for Advanced PD Therapy

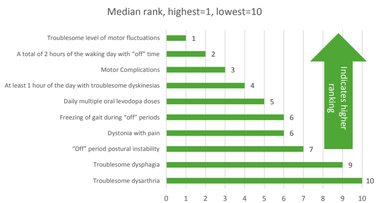


Figure 3a. NMS Ranking - Indicators for Inadequate Control on Oral PD

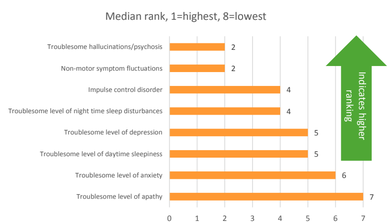


Figure 3b. NMS Ranking - Indicators for Advanced PD Therapy

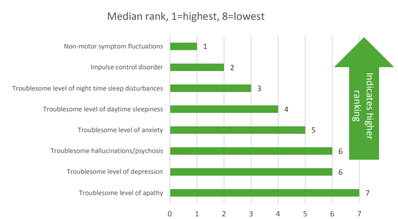


Figure 4a. FI Ranking - Indicator for Inadequate Control on Oral PD

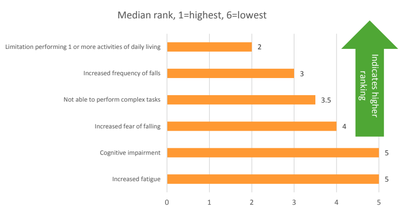
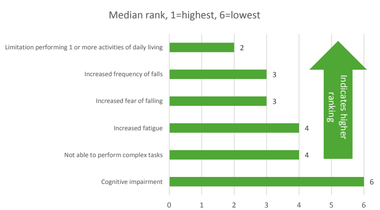


Figure 4b. FI Ranking - Indicators for Advanced PD Therapy



RESULTS (CONTINUED)

DESCRIPTION OF TOOL

- Indicators to assess whether patients are adequately controlled on oral PD, inadequately controlled on oral PD but with potential to optimize treatment, and inadequately controlled on oral PDs but eligible for advanced PD therapy are included in the tool.
- Section 1: Identifying patients inadequately controlled on oral medications
  - Five items measure presence/absence of symptoms/impacts:
    - Levodopa doses, motor symptom fluctuations, ≥2 hours with "off" time, troublesome dyskinesia with current oral medications, limitations performing one or more activities of daily living
- Section 2: Identifying patients needing advanced PD treatments
  - Ten domains (Items 6–20) capture frequency and/or severity items:
    - Unpredictable motor fluctuations, severity of "off" time periods, troublesome dyskinesia, level of independence with activities of daily living, dystonia with pain, freezing gait during "off" periods, non-motor symptoms, impulse control disorders, falls, hallucinations/psychosis without insight

COGNITIVE INTERVIEW WITH MDSs, N=5

- Wording changes were made to increase the level of comprehension of the items.
- Response options modified to capture frequency as: None of the time/never, Rarely (≤1/week), Frequent (several times per week), Most/all of the time (daily)
- Severity items added, response options defined as:
  - **Mild:** Detectable to clinician but not interfering with daily life (not or minimally troublesome to the patient)
  - **Moderate:** Detectable to clinician and influences daily life (troublesome to the patient)
  - **Severe:** Detectable to clinician and significantly influences daily life (very troublesome to the patient)
- Feedback on weighting of response options was received for indicators for inadequately controlled on oral PD and eligibility for advanced PD therapy.

STRENGTHS AND LIMITATIONS

STRENGTHS:

- Use of evidence-based, iterative, clinician-reported tool development methods (Powers et al. 2017)
- Inclusion of an international panel of MDSs with extensive years of experience treating PD patients
- Steering committee comprised of international clinical experts, which provides review and consultation on all phases of tool development
- Developing the APD tool represents an important contribution to the establishments of standards for treating APD

LIMITATIONS:

- Direct comparison of results obtained from previous studies not possible due to differences in methods utilized

NEXT STEPS FOR TOOL DEVELOPMENT

- Patient vignettes are being developed to represent patient symptom attributes across the spectrum of patients adequately controlled on oral PD, inadequately controlled on oral PD but with potential to optimize treatment, and inadequately controlled on oral PDs but eligible for advanced PD therapy.
- In Phase 2, patient vignettes will be used to examine the inter-rater reliability of the MDSs' ratings.
- Revisions to the tool or patient vignettes will precede testing of the tool with general neurologists. In Phase 3, general neurologists will rate the vignettes compared to MDSs and an assessment of potential revisions to items or scoring will be examined.

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DISCLOSURES

This study was supported by AbbVie, Inc. AbbVie participated in study design, research, data collection, analysis and interpretation of data, writing, reviewing, and approving the publication. KS, KO, TM, YJJ, and JZ are employees of Abbvie; AA, HF, and PO have received honoraria for consulting. PS has received support for participation from the National Parkinson Foundation. LK and AS have received funding from AbbVie to conduct the study.