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Advancing the Development of Patient Reported Outcomes for Adult Myositis at OMERACT 2016: An International Delphi Study

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Conflicts of Interest:

Dr. Christopher-Stine has served as an advisory Board Member of Option Care, MedImmune, and Mallinckrodt, and has intellectual property interest regarding an autoantibody assay with Inova Diagnostics

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Abstract

Objective.—To define a set of core patient-reported domains and respective instruments for use in idiopathic inflammatory myopathies (IIM). Previously, we reported a systematic literature review on patient reported outcomes (PROs) in IIM followed by conducting international focus groups to elicit patient perspectives of myositis symptoms and impacts.

Methods.—Based on qualitative content analysis of focus groups, an initial list of 26 candidate domains was constructed. We subsequently conducted an international modified Delphi survey to identify the importance of each of the 26 domains. Participants were asked to rate each domain on a scale of 0–10 (0 = not important, 10 = very important).

Results.—In this first round of Delphi survey, 643 patients participated from the USA (n=543), Sweden (n=49) and South Korea (n=51). Of the 26 domains, 19 (73%) were rated of high importance (7/10). The top 5 rated domains were muscle symptoms, fatigue, interactions with healthcare, medication side effects, and pain. During OMERACT 2016, we discussed the goal for ultimate reduction in the number of domains, and the importance of considering representation of healthcare providers from other specialties, caregivers, representatives of pharmaceutical industries, and regulatory authorities in the next rounds of Delphi to represent broader perspectives on the IIM.

Conclusions.—Further prioritization and a reduction in the number of domains will be needed for the next Delphi. At the next biennial OMERACT meeting, we aim to present and seek voting on a Myositis Preliminary PRO Core Set to enable ultimate measure selection and development.

Keywords

myositis; patient-reported outcomes; OMERACT; Delphi; outcome assessment

Introduction

Idiopathic inflammatory myopathies (IIM) affect muscle and extra-muscular organs resulting in significant limitation in activities of daily living and health-related quality of life (1–4). However, outcome measures used in clinical studies for IIM are often based on the measurement of pathophysiologic manifestations of the disease such as muscle weakness, elevated muscle enzymes, and skin changes, whereas the patients' perceptions of life impact of the disease has not been systematically addressed in clinical studies or routine clinical practice (3).

The OMERACT Myositis special interest group (SIG) was established to define a set of core domains and ultimately identify instruments that reflect the symptoms and life impact that are experienced by people living with myositis. A core set is defined as the minimum

number of domains which are needed to describe outcomes in clinical trials or clinical practice. A domain according to OMERACT is a further specification of an aspect of health, for example pain or physical function (5,6). The Myositis SIG is comprised of patient research partners (PRPs) with myositis, healthcare providers, and quantitative and qualitative methodologists who are interested in IIM.

At the OMERACT meeting in 2012, the newly formed Myositis SIG presented a systematic literature review on patient reported outcome measures (PROMs) used in the IIM (7). None of the extant measures had been developed following the currently recommended qualitative methodology outlined by OMERACT and other groups for domain identification and prioritization (8–11).

To study patients' experiences of disease we previously reported the results of several focus group sessions conducted in three countries, and analyzed transcripts to identify domains that were described by patients as relevant to their experience of myositis (12). These results were presented at the OMERACT meeting in 2014. At OMERACT 2016 the Myositis SIG presented the results from the first round of an international Delphi exercise to prioritize domains.

Methods

Identifying domains important to patients to assess.

Based on the qualitative content analysis of transcripts from the 11 focus groups involving 66 participants from 3 countries, an initial list of 26 candidate domains was constructed (12,13). During discussions between SIG investigators and PRPs, content and wording of the items for the first round online modified Delphi were revised until they best reflected the original intended domains and subdomains and would be comprehensible by patients. The survey was further translated to Korean and Swedish and discussed with PRPs within these countries to provide additional assurance of content comprehension and meaning.

Delphi survey

Patients with adult PM and DM in the USA, Sweden and South Korea were invited to participate in the first Delphi using an internet-based survey platform (www.qualtrics.com). Participants were asked to rate each domain on a scale of 0–10 (0 = not important, 10 = very important). Participants were then asked to add any additional domain(s) of importance in a free text box. Additional domains added by patients were discussed amongst SIG members for inclusion in future Delphis. This study was approved by IRB of Johns Hopkins University Hospital (IRB NA_ 00098790).

Statistical analyses

Mean scores were calculated for individual items. *A priori*, we had defined domain importance according to categories for analysis (< 4 low importance; 4 and < 7 moderate importance; and ≥ 7 high importance). Analysis of variance (ANOVA) was used to compare the response of the domains between the three countries.

Results

The OMERACT 2016 SIG Session

The purpose of the session was to review previous research, present current Delphi results, and develop a research agenda. Two PRPs, one OMERACT Fellow, and five health care providers (3 physicians, a physical therapist, and an occupational therapist) representing five countries and three continents led the Myositis SIG session. To set our focus on the patients' perspective in myositis, 2 PRPs (C.S. and I.d.G.) shared their experiences of living with DM and PM.

First-round online Delphi survey for patients with adult PM and DM

826 patients from the USA (n=551), Sweden (n=220) and South Korea (n=55) were invited to participate, and 643 (77.8%) patients in the USA (n=543), Sweden (n=49) and South Korea (n=51) completed the Delphi exercise. The mean (SD) age was 54.5 (13.3) years with disease duration of 8.1 (7.8) years, and 81% were female. Of 643 patients, 353 (54.9%) had DM (Table 1).

Of the 26 domains, 19 (73.1%) were rated very important (i.e. score 7/10) (Table 2). The top 5 rated domains were muscle symptoms, fatigue, interaction with healthcare and authorities, medication side effects, and pain. None of the domains were rated by patients as having low importance (i.e. score < 4). Except for "impact on household activity" and "interaction with healthcare and authorities", the rating of each domain did not differ between patients from 3 countries. Interestingly, patients with PM rated "skin involvement" of higher importance than patients with DM (7.9 ± 2.4 vs. 5.5 ± 3.4 , $p < 0.001$) (Supplementary Table 1). Suggestions in the free text box were provided by patients; however, after review by SIG members it was concluded that no additional domain information would be added by their inclusion.

Domain selection for the next Delphi survey

Based on discussions at OMERACT 2016 and subsequent phone and video teleconferences among SIG members, it was recognized that some domains represented overlapping constructs and could be potentially collapsed to reduce the total number of domains brought forward into the next round. For example, the domains "exercise" and "physical activity" could be grouped into one domain "physical activity". In addition, after discussion reviewing the work of the OMERACT Contextual Factors SIG and ICF nomenclature, the domain "social support" was recognized to be more appropriately considered as an environmental or contextual factor, and would thus be excluded from the next Delphi-round. Based on these decisions, a potential reduction to 24 domains could be used for the next round of the Delphi survey (Table 3).

A priori it was originally intended that those domains classified as high importance would be included in a second Delphi round. However, in response to over 70% of the domains being classified as highly important, it was decided to reframe how we asked patients to evaluate these domains for the next Delphi. Attendees at the SIG meeting discussed other methods that may be useful. These included suggestions to rank order domains from 1 through 20.

Ultimately, it was agreed upon to have each patient select the top 10 domains from among the list, then subsequently prioritize their top 5 in rank order. After the second round of Delphi survey the top ranked domains will be checked for their redundancy using a factor analysis. The ultimate goal is to identify a parsimonious group of domains to be measured as outcomes that adequately reflect the construct of interest, in this case the life impact of myositis from the patient perspective.

Discussion

At OMERACT 2016, the Myositis SIG presented the results of the first Delphi for domain prioritization, with the goal of defining a core set of PROM domains and instruments for inclusion in clinical trials of myositis.

This study is notable for the participation of 643 patients from three continents in a Delphi exercise, with its content informed by antecedent international focus groups. In the first round of Delphi, participants rated 19 (73.1%) of 26 domains as highly important, indicating the broad range of symptoms commonly experienced by people with myositis. Despite the difference in cultural background among participants, ratings of domains differed in only two of the 26 domains (“impact on household activity” and “interaction with healthcare and authorities), suggesting that patients with myositis from three different continents share similar experiences of the disease.

During the SIG session further engagement of multiple stakeholders was suggested, including healthcare providers from other specialties, caregivers, representatives of pharmaceutical industries and regulatory authorities. Their inclusion may help identify potential domains for clinical trials but may not be necessarily prioritized by patients. Based on these recommendations, the next round of the Delphi exercise will include healthcare providers, caregivers, representatives from pharmaceutical industry and regulatory authorities, and patients from other countries and continents (e.g. Australia, South America, The Netherlands). However, it will be important to provide descriptors of domains for different audiences with exemplars as has been reported by other groups (14).

In summary, achieving this research agenda will position us to present and seek voting on a Myositis Preliminary Patient Core Domain Set. This will enable our work to move forward in moving from domain selection to instrument identification and/or development using OMERACT Filters 1.0 and 2.0.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

1. Dalakas MC, Hohlfeld R. Polymyositis and dermatomyositis. *Lancet* 2003;362:971–82 [PubMed: 14511932]
2. Panyi A, Borgulya G, Constantin T, Vancsa A, Gergely L, Danko K. Functional outcome and quality of life in adult patients with idiopathic inflammatory myositis. *Rheumatology (Oxford)* 2005;44:83–8 [PubMed: 15381789]
3. Regardt M, Welin Henriksson E, Alexanderson H, Lundberg IE. Patients with polymyositis or dermatomyositis have reduced grip force and health-related quality of life in comparison with reference values: an observational study. *Rheumatology (Oxford)* 2011;50:578–85 [PubMed: 21097879]
4. Marie I, Hachulla E, Hatron PY, Hellot MF, Levesque H, Devulder B, et al. Polymyositis and dermatomyositis: short term and longterm outcome, and predictive factors of prognosis. *J Rheumatol* 2001;28:2230–7 [PubMed: 11669162]
5. Escorpizo R, Boers M, Stucki G, Boonen A. Examining the similarities and differences of OMERACT core sets using the ICF: first step towards an improved domain specification and development of an item pool to measure functioning and health. *J Rheumatol* 2011;38:1739–44 [PubMed: 21807795]
6. Boers M KJ, Tugwell P. 2016 [updated 2016 May-5-2016; cited]; Available from: https://www.omeract.org/pdf/OMERACT_Handbook.pdf.
7. Alexanderson H, Del Grande M, Bingham CO, 3rd, Orbai AM, Sarver C, Clegg-Smith K, et al. Patient-reported outcomes and adult patients' disease experience in the idiopathic inflammatory myopathies. report from the OMERACT 11 Myositis Special Interest Group. *J Rheumatol* 2014;41:581–92 [PubMed: 24429182]
8. Patrick DL, Burke LB, Gwaltney CJ, Leidy NK, Martin ML, Molsen E, et al. Content validity—establishing and reporting the evidence in newly developed patient-reported outcomes (PRO) instruments for medical product evaluation: ISPOR PRO good research practices task force report: part 1—eliciting concepts for a new PRO instrument. *Value Health* 2011;14:967–77 [PubMed: 22152165]
9. Patrick DL, Burke LB, Gwaltney CJ, Leidy NK, Martin ML, Molsen E, et al. Content validity—establishing and reporting the evidence in newly developed patient-reported outcomes (PRO) instruments for medical product evaluation: ISPOR PRO Good Research Practices Task Force report: part 2—assessing respondent understanding. *Value Health* 2011;14:978–88 [PubMed: 22152166]
10. Kirwan JR, Bartlett SJ, Beaton DE, Boers M, Bosworth A, Brooks PM, et al. Updating the OMERACT filter: implications for patient-reported outcomes. *J Rheumatol* 2014;41:1011–5 [PubMed: 24584919]
11. Kirwan JR, Fries JF, Hewlett SE, Osborne RH, Newman S, Ciciriello S, et al. Patient perspective workshop: moving towards OMERACT guidelines for choosing or developing instruments to measure patient-reported outcomes. *J Rheumatol* 2011;38:1711–5 [PubMed: 21807790]
12. Regardt M, Basharat P, Christopher-Stine L, Sarver C, Bjorn A, Lundberg IE, et al. Patients' Experience of Myositis and Further Validation of a Myositis-specific Patient Reported Outcome Measure - Establishing Core Domains and Expanding Patient Input on Clinical Assessment in Myositis. Report from OMERACT 12. *J Rheumatol* 2015;42:2492–5 [PubMed: 25934817]
13. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004;24:105–12 [PubMed: 14769454]

14. Bartlett SJ, Hewlett S, Bingham CO, 3rd, Woodworth TG, Alten R, Pohl C, et al. Identifying core domains to assess flare in rheumatoid arthritis: an OMERACT international patient and provider combined Delphi consensus. *Ann Rheum Dis* 2012;71:1855–60 [PubMed: 22772326]

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Highlight

- 643 patients with myositis from 3 different continents participated in the first Delphi to prioritize 26 initial candidate domains for inclusion in a myositis PRO Core Domain Set.
- Because 19 (73.1%) of 26 domains were rated as highly important in the first Delphi, a more discriminative method for prioritization may be needed for the next Delphi round.
- The results from subsequent Delphi rounds will help to inform the development of a Myositis PRO Preliminary Core Domain Set for evaluation at the next OMERACT conference.

Table 1.

Baseline characteristics of 643 patients with myositis who completed Delphi survey.

	USA N=543	Sweden N=49	South Korea N=51	Total N=643	p-value
Age, years \pm SD	54.2 \pm 13.0	62.6 \pm 11.8	49.7 \pm 14.1	54.5 \pm 13.3	0.000
Female (%)	446 (82.1)	36 (73.5)	40 (78.4)	522 (81.2)	0.289
DM (%)	283 (52.1)	26 (53.1)	44 (86.3)	353 (54.9)	<0.001
Ds duration, years \pm SD	7.9 \pm 7.3	10.1 \pm 10.1	7.8 \pm 7.3	8.1 \pm 7.8	0.170

P values were generated by ANOVA.

DM, dermatomyositis; Ds, disease; SD, standard deviation.

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Table 2.

Importance rating of 26 candidate domains included in the first round of Delphi survey.

Domain "On a scale of 0–10, how important..."	USA (n = 543)	Sweden (n = 49)	S. Korea (n = 51)	Total (n= 643)
1 .. is muscle symptom to you (weakness, low endurance)?	9.2 ± 1.6	9.0 ± 1.2	8.7 ± 1.8	9.1 ± 1.6
2 .. are joint symptoms to you (for example: stiffness, swelling, pain in joints or muscle tendons)?	7.4 ± 2.8	7.3 ± 2.8	8.0 ± 2.5	7.4 ± 2.8
3 .. are skin symptoms such as rash, losing hair and nail to you?	6.6 ± 3.2	6.0 ± 3.5	7.1 ± 3.2	6.6 ± 3.2
4 .. is pain to you (for example: muscle pain)?	7.8 ± 2.7	7.5 ± 2.9	8.1 ± 2.2	7.8 ± 2.7
5 .. is lung involvement to you (cough, shortness of breath)?	7.3 ± 3.2	7.4 ± 3.6	8.1 ± 2.7	7.3 ± 3.2
6 .. are cardiovascular symptoms to you?	6.8 ± 3.3	7.4 ± 3.6	7.3 ± 3.0	6.9 ± 3.3
7 .. is dysphagia to you (difficulty swallowing)?	6.9 ± 3.2	7.2 ± 3.3	6.8 ± 3.4	6.9 ± 3.2
8 .. are gastrointestinal tract symptoms to you (constipation, upset stomach, diarrhea)?	6.5 ± 3.0	6.8 ± 3.1	6.6 ± 3.0	6.6 ± 3.0
9 .. are dryness of eyes and/or mouth to you?	6.0 ± 3.0	6.4 ± 3.2	6.7 ± 3.1	6.1 ± 3.0
10 .. is incontinence to you?	5.6 ± 3.4	5.6 ± 4.1	5.9 ± 3.1	5.7 ± 3.5
11 .. are increased risk of infections to you?	7.5 ± 2.7	7.5 ± 3.1	7.6 ± 2.7	7.5 ± 2.7
12 .. are medication side effects to you?	8.0 ± 2.3	8.2 ± 2.8	8.6 ± 1.7	8.0 ± 2.3
13 .. is difficulty sleeping to you?	7.3 ± 2.7	7.4 ± 2.5	7.3 ± 2.9	7.3 ± 2.7
14 .. is fatigue to you?	8.6 ± 1.9	8.3 ± 2.4	8.1 ± 1.9	8.5 ± 1.9
15 .. is cognitive impact to you (such as memory, concentration)?	7.6 ± 2.7	7.4 ± 3.0	7.3 ± 3.2	7.6 ± 2.8
16 .. is the impact on activities of personal care in everyday life to you?	7.6 ± 2.7	7.1 ± 3.3	7.3 ± 2.4	7.5 ± 2.7
17 .. is the impact on household activities in everyday life to you?*	7.8 ± 2.3	6.8 ± 3.0	7.6 ± 2.1	7.7 ± 2.3
18 .. is the impact on leisure activities in everyday life to you?	7.8 ± 2.2	7.7 ± 2.5	7.6 ± 2.0	7.8 ± 2.2
19 .. is impact on work ability to you?	7.7 ± 2.8	7.4 ± 3.2	8.4 ± 1.7	7.7 ± 2.8
20 .. is impact on social gatherings/activities to you?	7.2 ± 2.5	7.2 ± 2.9	7.7 ± 1.9	7.2 ± 2.5
21 .. is impact on relation and/or intimacy to you?	7.1 ± 2.8	7.4 ± 2.7	7.2 ± 2.6	7.1 ± 2.8
22 .. is emotional distress to you (for example: anxiety, depression, stress and grief)?	7.4 ± 2.6	7.4 ± 2.9	7.8 ± 2.2	7.4 ± 2.6
23 .. is it to assess how much you exercise?	7.5 ± 2.2	7.2 ± 2.8	8.0 ± 1.8	7.5 ± 2.3
24 .. is it to assess how physically active you are?	7.7 ± 2.1	7.5 ± 2.6	7.9 ± 1.9	7.7 ± 2.1
25 .. is it to assess your social support?	7.0 ± 2.4	6.8 ± 2.5	6.9 ± 2.2	7.0 ± 2.4
26 .. is it to assess how interaction with healthcare and authorities works?*	8.1 ± 2.1	8.7 ± 2.2	9.0 ± 1.5	8.3 ± 2.1

Data are in mean ± SD.

*Importance ratings differed significantly between 3 groups (p<0.05 by ANOVA).

Table 3.

Candidate domains for the following round of Delphi survey.

Candidate domains
1. Muscle symptom (excluding pain)
2. Joint symptoms (excluding pain)
3. Skin symptoms (excluding pain)
4. Pain
5. Lung symptoms
6. Cardiovascular symptoms
7. Dysphagia (difficulty swallowing)
8. Gastrointestinal tract symptoms
9. Dryness of eyes and/or mouth
10. Incontinence
11. Increased risk of infection
12. Medication side effects
13. Difficulty sleeping
14. Fatigue
15. Cognitive impact
16. Personal Care
17. Household activities
18. Leisure activities
19. Work ability
20. Social gathering
21. Relation and/or intimacy
22. Emotional distress
23. Levels of physical activity
24. Interaction with healthcare personnel and authorities *

* Authorities may encompass insurance companies, employers, and regulatory agencies, etc.