Idiopathic Multicentric Castleman disease (iMCD) is a subcategory of MCD, a rare lymphoproliferative disorder characterized by enlargement of the lymph nodes and lymphatic system. In a recent international survey involving iMCD patients, we identified substantial symptom burden owing to (or as a result of) the wide array of symptoms resulting in significant impact on various aspects of patients’ daily lives. Currently, there is no established method for evaluating this specific symptom burden scale is essential to enable disease monitoring and management as well as it use in clinical trials.

To advance our goal of creating such a scale, we conducted an exploratory internal analysis of the symptoms identified and the patient-reported impact on their daily activities. This analysis aims to assess the psychometric properties of the survey, evaluating its adequacy, relevance, and utility in gauging the symptom burden experienced by iMCD patients.

In addition, this analysis aimed to assess the performance of certain pre-specified hypotheses, generated from external clinical and patient experts, against the psychometric properties of the survey with respect to its construct validity.

Methods

The iterative process of survey development has been described in a previous publication.1 The survey was administered to adult iMCD patients in Australia, Canada, the UK and the US from April to November 2021, and registered with the Castleman Disease Collaborative Network (CDCN).

Questions related to patient-reported effect on daily life (e.g., due to symptoms or treatment) were assigned a Likert scale numerical value; in this case values were assigned on an ordinal scale from 0 to 4 for the following severity categories: 0: does not affect my daily life; 1: slightly affects my daily life; 2: moderately affects my daily life; 3: severely affects my daily life; 4: very severely affects my daily life. A higher number on the ordinal scale to worse severity in terms of patient-reported effect on daily life.

Hypotheses (HS) were generated through collaboration between an iMCD clinician, a patient, and an informal caregiver representative via in-depth interviews (Fig. 1). The interviews explored whether questions and response options could be grouped together as the same or related to one another (e.g., responses to one item relating to responses on another item with a weak, moderate or strong association and the direction of that association).

Analysis

The results include all observed cases from the cohort (N=51); therefore, the observed case size (n) varies dependent on the analysis being performed with relevant n values presented in the result tables. All analyses were conducted in Stata 17. Spearman’s rank absolute correlation strength (ACS) and associated p-values are used for HS-1 and HS-2. The strength of the correlation is described based on the ACS with a convergent validity statistically significant relationship defined by ACS ≥0.3 and p-value <0.05, and discriminant validity defined by ACS <0.3 (no need for statistical significance). For HS-3 Cohen’s d was used to quantify standardized effect sizes for HS-3 with statistical significance determined by ACS>0.3 and p<0.05.

Results

Detailed participant characteristics have been published1 and are shown in Poster 1 of this series. Fifty-one patients self-reported having clinician diagnosed iMCD. Most patients (36/51; 70.6%) reported receiving IMCD-directed treatment and most of these reported receiving an anti-interleukin-6 monoclonal antibody (31/36; 86.1%). The frequency of administration varied between once-a-week to once every six weeks.

A total of 27 unique symptoms were experienced by the 46 patients in the week prior to completing the survey, with 5 patients experiencing no symptoms. HS-1: In terms of convergent validity, none of the analyses supported the hypotheses; ACS for all relationships were higher than 0.3, but none were statistically significant. In terms of discriminant validity, two discriminant relationships (dizziness-impaired cognitive function and dizziness-tiredness; ACS<0.3) are supported by our analyses. HS-2: It was supported by the analyses with a positive - moderate to strong relationship (p<0.01) i.e., a higher number of symptoms was associated with overall symptoms having a worse patient-reported effect on specific aspects of daily life (Table 1). HS-3: was not supported by the analysis.