INTRODUCTION AND PURPOSE

New and emerging disease-modifying therapies (DMTs) of Treating Multiple Sclerosis (TMs) offer alternative administration forms and side-effect profiles. However, to date, little is known about the patients' preferences regarding the characteristics of DMTs.

A quantitative understanding of patient preferences to key treatment characteristics is needed to evaluate the profiles of current and future DMs and to inform decision making.

The Treatment Experiences, Rendars, and Uncover Needs (TREASURE) study, using a discrete choice experiment (DCE) methodology, aimed at revealing patients' preferences related to current and future treatment characteristics.

METHODS

- Adult patients with clinically definite MS were recruited from major treatment centers in Canada, Germany, France, Italy, Spain, and the United Kingdom.
- Patients were excluded if they were enrolled in a clinical trial or had any disability inhibiting their participation.
- Patient self-completed a web-questionnaire providing information regarding their age, gender, onset of disease symptoms, time of diagnosis, type of MS, disease severity, and treatment with MS therapies.
- Disease severity was captured using the self-administered Expanded Disability Status Scale (EDSS), the scores for which range from 0 to 10 with increasing severity.

The DCE consisted of 18 hypothetical treatment scenarios:

- Each scenario was built on 6 different attributes, constructed by altering the different levels of the 6 domains: mode of administration, frequency of administration, duration of administration, administration, monitoring, localized side effects, and systemic side effects (Table 1).
- For each scenario, patients were asked to state which of the attributes they perceived as the "most acceptable" and the "least acceptable," respectively (Figure 1).

A hypothetical health-state scenario was also created based on different levels of the 6 domains, and patients indicated their preferences on a visual analog scale (VAS), ranging from 0 (worst health state) to 100 (best imaginable health state).

The data on treatment preferences were analyzed according to the best-worst scaling design described by Fynn et al.

The paired-triod approach was used, in which all 436 possible combinations of most and least acceptable attributes were considered.

The natural log of the number of times each combination was selected, divided by how many times it was available from all responses from all respondents, was calculated for each attribute.

This served as the outcome variable in a regression analysis to elucidate the probability of each attribute to be selected as the most or least acceptable, respectively.

Covariates were included for each domain and level, taking the value if the domain level was considered the most acceptable, 0—1 if considered the least acceptable, and 0 if not included in the domain level. The domain level regression parameters were estimated using a weighted least squares (WLS) model.

The parameters were then reselected according to the 2 scenarios rated on the VAS.

RESULTS

- Out of 2760 invited patients, 55% agreed to participate in the study and completed the TREASURE questionnaire.
- 130 respondents did not complete any of the 18 treatment scenarios; the remaining 1370 respondents were considered in the analysis.

The following are the results for the 18 TM scenarios:

- No statistically significant differences were observed across countries in terms of gender, age, disease onset, or type of MS.
- Most respondents were women.
- On average, patients were diagnosed 8.5 years before the study and had their first disease symptoms 3 years before diagnosis.
- Most respondents had the relapsing-remitting type of MS.
- In most countries, more than half of the respondents had a mild disability due to the disease activity of 0—3.3, with the exception of the United Kingdom, in which most patients had disability of moderate severity (EDSS 4.4—5.5).
- Few very respondents (10%—15% across all countries) had severe EDSS scores (EDSS 7—9).
- The majority of respondents reported receiving DMT within the past 3 months and close to half of the remaining had received such treatment in the past.

The attributes most frequently selected as "most acceptable" when available in the 18 hypothetical treatment scenarios were related to the administration form and frequency of treatment (Figure 2).

- A pill "that you take orally" was selected as the most preferred attribute 50% of the potential times, which indicates the importance of the attribute relative to the attributes of the other domains.

The 2 scenarios rated on a VAS scale were given mean VAS scores of 81 and 31, respectively. The estimated effects within the levels of each domain were recasted onto the VAS scale (Table 3).

Aral oral administration was preferred over subcutaneous or intramuscular injections or infusions.

- Taking your treatment once a month was the most preferred frequency of administration.
- Hypothetical treatments requiring no monitoring and causing no side effects were preferred.
- Respondents preferred experiencing "headache, fatigue, nausea, or pain in parts after taking treatment" over "flu-like symptoms for about a day after treatment" or "flushing, cold patch, fast heart, heart rhythm, anxiety, shortness of breath, or itching for a few minutes after taking treatment"; however preferences did not vary as greatly between these attributes.

The results were similar across all countries and for respondents who had never received DMTs for MS, with the exceptions.

CONCLUSIONS

The results of the DCE showed that patients are clearly favoring oral treatment to injections and infusions, and the difference in taking a pill compared with injection or infusion overwhelmingly other treatment administration and tolerability attributes that were studied.

The findings were consistent across all 8 European countries and Canada; no patterns or signals were identified that could be attributed to differences in treatment patterns or guidelines in the 6 countries.

Our knowledge base is the first study eliciting patients' preferences regarding different characteristics of MS treatments. Similar preferences have been reported by patients belonging to the existing cohorts, but they have never before been studied in a structured way with rigorous methodology.

Our study provides quantitative evidence for preferences relating to administration and tolerability attributes of MS treatments that may not be given as clear, with efficacy and risk considerations; the data should be considered in future comparative evaluation of DMTs in MS and could be useful in informing treatment decisions.

REFERENCES

2. Funnell HJ et al. Health Econ. 2007;16(1):159-175.