Patient preferences, trade-offs and acceptable risks in the treatment of systemic sclerosis-associated interstitial lung disease: a step towards shared decision-making

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INTRODUCTION

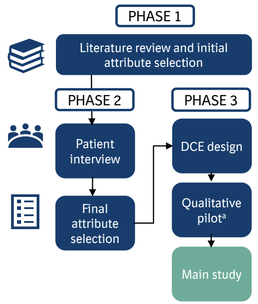
- Current treatments for SSc-ILD are characterised by different attributes such as mode of administration, AEs and efficacy.
- As physicians and patients perceive treatments differently, shared decision-making is essential.

OBJECTIVE

- The objective of this multi-phased study was to identify relevant SSc-ILD treatment attributes and quantify preference for these attributes.

METHODS

Attribute selection and DCE development



[a]The DCE was developed in English, then translated and reverse-translated in different languages for France, Switzerland, Germany and Norway

Example discrete choice experiment (DCE)

- In the DCE,[1] patients with SSc-ILD were asked to make repeated choices between two alternatives characterised by varying levels of seven attributes.

	Treatment A	Treatment B
Mode of administration	Oral (twice daily)	Infusion (every 6–12 months at hospital or local clinic)
Skin tightness	Tightness in your hands or arms is present, but does not limit daily activities	Tightness in your hands or arms is present, but limits daily activities
Shortness of breath	You are short of breath when walking up hills or stairs (no problems with breathlessness)	You are short of breath when sitting or lying still (severe breathlessness)
Tiredness	You feel tired some days a week and complete most usual activities	You feel tired most days a week and complete few usual activities
Coughing	You have a persistent cough that is easy to tolerate	You have an occasional cough that is easy to tolerate
Risk of diarrhoea, nausea and/or vomiting	20 have diarrhoea, nausea or vomiting 80 do not have diarrhoea, nausea or vomiting	60 have diarrhoea, nausea or vomiting 40 do not have diarrhoea, nausea or vomiting
Infections	30 have non-serious infections 10 have serious infections 60 have no infections	5 have non-serious infections 0 have serious infections 95 have no infections

Data on patient choices were analysed using a logit model. Preferences were estimated using marginal utilities. Two output measures were obtained from estimates:

- Relative attribute importance (RAI) – how much variation in utility is due to changes in each attribute.
- Maximum acceptable risk (MAR) of diarrhoea, nausea and/or vomiting that patients were willing to accept for an improvement in symptoms and AEs.

CONCLUSIONS

- This is the first study to quantitatively elicit patients' preferences for attributes of SSc-ILD treatments.
- Patients with SSc-ILD considered safety, efficacy and convenience when deciding on treatments and were able to make trade-offs.
- Patients showed willingness to make trade-offs, thus providing firm support for shared decision-making in routine clinical practice of SSc-ILD.

RESULTS

Sample characteristics

Of 1079 invited patients, 231 completed the survey[a]

France: 14%
Germany: 18%
Norway: 8%
Switzerland: 13%
USA: 47%

Mean (SD) age: 52.6 (13.2) years

54% of patients diagnosed for >5 years

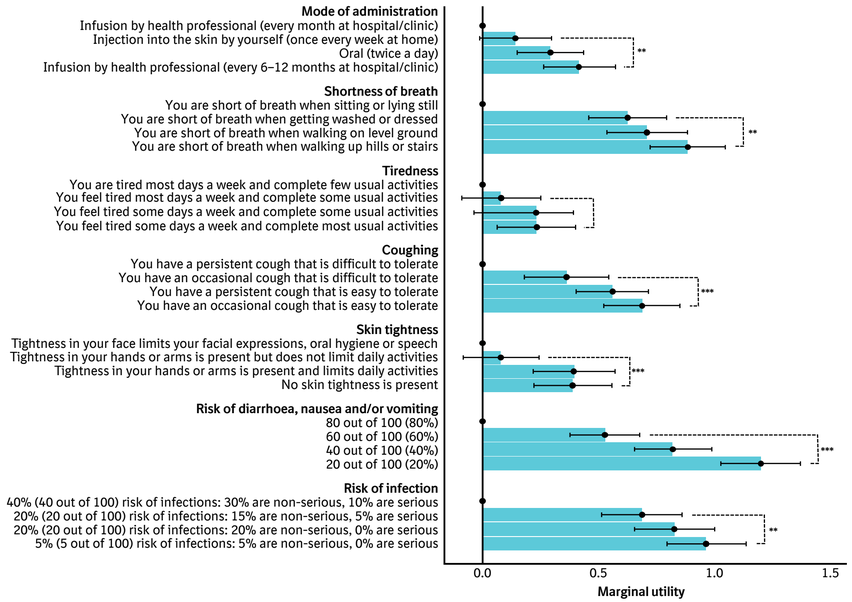
Symptoms experienced:
Raynaud's syndrome: 92%
Tiredness: 82%
Shortness of breath: 77%
Coughing: 58%

[a]Patients were recruited based on physician referrals, with approximately half of them being identified through European League Against Rheumatism (EULAR) Scleroderma Trials and Research (EUSTAR) centres.

Main model estimates

Based on the model estimate of patient preferences in the DCE:

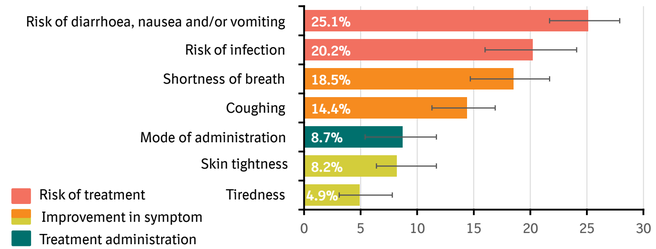
- Patients preferred twice-daily oral treatments and infusion (6–12 months)
- Patients significantly preferred lower levels of severity and impact of symptoms and AEs



Whiskers denote 95% CI. Constant of left alternative was 0.06 (SE 0.05). Final log-likelihood at convergences: −1563. Number of respondents: 231. McFadden adjusted R2: 0.176. Bayesian information criterion: 3300. Estimation via maximum likelihood method: *P<0.05; **P<0.01; ***P<0.001. Estimates denote how preferences are affected by deviating from the reference level (first level) in each attribute. Bars with a CI that does not cross zero capture a positive effect on preferences. The longer the bar, the larger the impact on preferences. However, the relative magnitude of the difference between bars should not be interpreted due to the ordinal nature of underlying preferences and an arbitrary scale.

Relative attribute importance – the impact of attributes on preferences

- Patients' choices were mostly affected by the risk of GI AEs (RAI=25.1%; 95% CI 22–28%) and risk of infections (RAI=20.2%; 95% CI 16–24%).
- Overall, benefits (RAI=46.0%) and risks (RAI=45.3%) were of similar importance, suggesting that careful benefit–risk assessment is needed prior to treatment initiation.



Whiskers denote bootstrapped 95% confidence interval

MAR of GI AEs – measure of trade-offs for symptom and AE improvement

To reduce the frequency of an infusion (monthly to every 6/12 months)	Patients accepted **+21%** increase in GI AEs
To change from monthly infusion to twice-daily oral treatment	Patients accepted **+15%** increase in GI AEs
If breathlessness occurred during routine activities rather than at rest	Patients accepted **+37%** increase in GI AEs
To reduce the risk of non-serious infections (30→15%) and serious infections (10→5%)	Patients accepted **+36%** increase in GI AEs

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REFERENCES

1. Soekhai V, et al. PharmacoEconomics 2019; 37:201–226.

ABBREVIATIONS

AE, adverse event; CI, confidence interval; DCE, discrete choice experiment; EUSTAR, European Scleroderma Trials and Research Group; GI, gastrointestinal; ILD, interstitial lung disease; SD, standard deviation; SSc, systemic sclerosis.

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EUSTAR

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