Elicitation of health state utilities associated with varying severities of flare in systemic lupus erythematosus

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Introduction

- Systemic lupus erythematosus (SLE) is a chronic, multi-system, autoimmune disease
- SLE is associated with inflammation and damage of multiple organ systems including the skin, joints, heart, lungs, kidneys and central nervous system (CNS)
- SLE is characterised by periods of low disease activity and periods of flare
- Flare is associated with a significant humanistic and economic burden
  - Increased disease activity is a predictor of irreversible organ damage and morbidity
  - Major organ flares such as renal or CNS flares are associated with increased healthcare resource use and loss of productivity
Study objective and methodology

**Objective**
To generate utility values for varying severities of SLE flares across 6 countries

**Methodology**
- Development and validation of health states for varying severities of flare based on patient and clinical expert insight
- Elicitation of utility values through Time trade off (TTO) interviews with members of the general public in each country

**Geographic scope**
- Australia (AU)
- Canada (CA)
- Spain (ESP)
- France (FRA)
- Japan (JPN)
- United Kingdom (UK)
Methodology - development of health state descriptions

1. Review of literature and insights from patient blogs
   • To provide insights into the range and frequency of symptoms

2. Patient interviews (n=7 UK, n=5 JPN)
   • To provide insights on the impact of SLE on patient HRQoL
     Demographics:
     • All patients had ≥1 flare in the past 12 months
     • All patients were female, age 28–59 years
     • Time since diagnosis between 20–50 years

3. Clinical expert interviews (Rheumatologists n=7 and nurses (n=2))
   • To provide insights into symptoms associated with different organ manifestations
Health state descriptions

- Each health state (n=6) described the perspective of an ‘average’ SLE patient, experiencing different organ manifestations across varying severities of flare.
- Health states covered the EQ-5D domains:
  - Mobility, self-care, pain, usual activities and emotions, plus impact of medication and outlook.
- Three separate severe health states were included:
  - Severe renal and CNS flares have a considerable detrimental impact on patient HRQoL.

<table>
<thead>
<tr>
<th>Health state (n=6)</th>
<th>Organ manifestation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skin</td>
</tr>
<tr>
<td>Anchor (minimal disease activity)</td>
<td>✓</td>
</tr>
<tr>
<td>Mild</td>
<td>✓</td>
</tr>
<tr>
<td>Moderate</td>
<td>✓</td>
</tr>
<tr>
<td>Severe Generalised</td>
<td>✓</td>
</tr>
<tr>
<td>Severe Renal</td>
<td>✓</td>
</tr>
<tr>
<td>Severe CNS</td>
<td>✓</td>
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</tbody>
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Methodology - health state validation and utility elicitation

1. Clinical expert validation interviews (Rheumatologists, n=6)

2. Pilot interviews (n=10 UK)
   - Pilot interviews with members of the general public using visual analogue scale (VAS) and TTO exercises

3. Utility values were elicited with members of the general public (n≥100/country).
   - A demographically representative cross-section of society was recruited in each country
   - Paired t-tests on VAS and TTO utility scores to test for significant differences between all health state combinations
Results summary

- Utility decreased with increasing flare severity
  - The TTO utility and VAS scores decreased from the anchor health state to the severe generalised health state across all countries

- The mean TTO scores for the severe CNS and severe renal health state were consistently higher than scores for the severe generalised health state across countries, (p>0.005)
  - The perceived day to day negative impact of a severe generalised flare is greater than that of a severe CNS or severe renal flare

- The lowest utility scores were often observed in the Japanese cohort, with the exception of the severe renal flare health state and the severe CNS flare health state
Results- TTO scores across countries

Box-plots illustrating the distribution (median, interquartile range, minimum and maximum) of TTO scores for each country.
Conclusions

- From a societal perspective, increasing severity of flare is associated with a decrease in utility.
- Flares of any severity are associated with a disutility over the anchor health state.
  - The severe generalised health state is perceived as the most severe, this may be due to increased levels of pain, treatment burden and heightened fatigue compared to the other health states.
- These findings are consistent across localities and are corroborated by the published literature:
  - High levels of pain and fatigue in SLE are associated with a low HRQoL\textsuperscript{1,2,3}
- The lowest scores were observed for the Japanese cohort.
  - Potentially due to cultural disparities such as the general population’s perception of disease.
  - Some descriptors within the health states may have been perceived as worse by the general population in Japan compared to other countries.

Study Limitations

- A representative population was recruited, therefore the distribution of participants age and gender differs from that of a typical SLE population
- Previous studies have demonstrated difference between valuations derived from the general public and from patients\(^4\)
- Due to the heterogeneous nature of SLE not all organ manifestations could be captured, the health states did not capture length or frequency of flares as this is highly variable

\(^4\) Stamuli E. British medical bulletin. 2011;97(1):197-210
Questions?
Abbreviations

- AU = Australia
- CA = Canada
- CNS = Central Nervous System.
- EQ-5D = European Quality of Life-5 Dimensions.
- ES = Spain
- FR = France
- HRQoL = Health-Related Quality of Life.
- J PN = Japan
- SLE = Systemic Lupus Erythematosus.
- TTO = Time Trade Off.
- UK = United Kingdom
- VAS = Visual Analogue Scale.

