Health-Related Quality of Life and Glycemic Control in Patients with Type 2 Diabetes Mellitus

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Introduction

Diabetes Mellitus (DM) is a universal problem with increasing prevalence, projected to affect 366 million people worldwide by 20301. In Singapore, it affects 8.2% of residents between ages 18-69 and has a profound impact on healthcare, economy and individuals. Diabetes not only reduces patient’s physical well-being but also compromises other aspects of Health-Related Quality of Life (HRQoL)2.

Methods

A Domain Specific Review Board (DSRB) approved cross-sectional observational survey was conducted at two National Healthcare Group Polyclinics (NHGPs) — Bukit Batok Polyclinic and Ang Mo Kio Polyclinic. The survey questionnaire was administered to 301 patients by interviewers, in English or Mandarin, between September 2009 and December 2009.

Inclusion Criteria

- ≥ 21 years old
- T2DM history of >1 year
- On follow up at NHGPs
- Pharmacologic treatment

Exclusion Criteria

- Type 1 Diabetes Mellitus
- Patients with any cognitive impairment

Survey Questionnaire

In addition to sociodemographics, both a generic and a DM-specific HRQoL instrument, i.e., the EQ-SD and the Audit of Diabetes-Dependent Quality of Life (ADDQol), respectively, were included in the survey questionnaire.

Table 1. ADDQoL and EQ-SD

<table>
<thead>
<tr>
<th>Factors</th>
<th>EQ-SD</th>
<th>ADDQoL</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ-SD</td>
<td>0.89 ± 0.16</td>
<td>2.5 ± 2.0</td>
</tr>
<tr>
<td>ADDQoL</td>
<td>0.80 ± 1.6</td>
<td>1.0 ± 0.4</td>
</tr>
</tbody>
</table>

Results

A total of 370 patients were approached and 301 patients were interviewed, giving a response rate of 81.4%.

The proportions of respondents were evenly distributed between the two genders (91.1% male) and the choice of language versions (50.7% English).

The mean ± S.D. age of patients was 58 ± 8.8 years.

Most respondents were overweight (72.0%), Chinese (73.8%), and insulin independent (69.5%).

Table 2. HRQoL and HbA1c

<table>
<thead>
<tr>
<th>Factors</th>
<th>n (%) or Mean ± S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ-SD</td>
<td>0.89 ± 0.16</td>
</tr>
<tr>
<td>ADDQoL</td>
<td>2.5 ± 2.0</td>
</tr>
<tr>
<td>HbA1c</td>
<td>8.0 ± 1.6</td>
</tr>
</tbody>
</table>

Discussion

Respondents’ HRQoL

- Appropriate pain management
- Patient counseling to address disease-related anxiety
- Help patients build confidence in disease management

HRQoL and Sociodemographic factors

- Progression of Disease
- Treatment Intensification
- Reduced HbA1c
- Psychological barrier
- Inconvenience
- Sensation of Pain

HRQoL and HbA1c

- Keeping HbA1c within a desirable range could be a contributor to HRQoL improvement.

Conclusions

DM patients in primary care settings frequently reported problems with pain and restrictions in diet. Poorer HRQoL was found to be associated with higher HbA1c, which indicates poorer glycemic control. The chronicity of DM and use of insulin may have negative impact on patients’ HRQoL.

References

2Ko YJ et al. Qual Life Res 2014; 23:1581-91

Appendix

Table 2. Key determinants of HRQoL in the patients

<table>
<thead>
<tr>
<th>Sociodemographic Factors</th>
<th>EQ-SD</th>
<th>ADDQoL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>0.89 ± 0.17</td>
<td>0.822 ± 0.20</td>
</tr>
<tr>
<td>Mandarin</td>
<td>0.89 ± 0.15</td>
<td>0.822 ± 0.20</td>
</tr>
<tr>
<td>Gender</td>
<td>0.89 ± 0.16</td>
<td>0.822 ± 0.20</td>
</tr>
<tr>
<td>Male</td>
<td>0.89 ± 0.15</td>
<td>0.822 ± 0.20</td>
</tr>
<tr>
<td>Female</td>
<td>0.89 ± 0.16</td>
<td>0.822 ± 0.20</td>
</tr>
</tbody>
</table>

Table 3. Associations between HRQoL and HbA1c

<table>
<thead>
<tr>
<th>HbA1c Measure</th>
<th>r</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ-SD (Index Score)</td>
<td>-0.20</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ADDQoL (A1W)</td>
<td>-0.19</td>
<td>&lt;0.002</td>
</tr>
</tbody>
</table>

Conclusion

DM patients in primary care settings frequently reported problems with pain and restrictions in diet. Poorer HRQoL was found to be associated with higher HbA1c, which indicates poorer glycemic control. The chronicity of DM and use of insulin may have negative impact on patients’ HRQoL.