Sustained improvement in diabetes-specific quality of life in adults with long-standing type 1 diabetes and problematic hyperglycaemia: 2-year results from the HypoCOMPaSS study

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Background

The 24-week HypoCOMPaSS randomised controlled trial (RCT) demonstrated improved awareness of hyperglycaemia and a reduction in severe hyperglycaemia among adults with long-standing type 1 diabetes following education and support. These improvements were sustained at 24 months. No relative benefit of technology was observed at 24 weeks or 24 months, comparing insulin pump vs. multiple daily injections (MDI) and real-time continuous glucose monitoring (RT-CGM) vs. conventional self-monitoring of blood glucose (SMBG). The RCT also demonstrated reduced fear of hyperglycaemia (all groups) and improved diabetes treatment satisfaction (all groups but with greater benefit for those allocated to pump). Therefore, benefits for diabetes-specific quality of life were also expected.

Methods

Study design

A multi-centre, 24-week, 2x2 factorial RCT followed by 24-month follow-up—details in published protocol1. Participants were randomised to 1:4 groups, comparing insulin delivery modalities (insulin pump vs. MDI) and glucose monitoring regimen (RT-CGM vs. SMBG). All participants attended a brief structured psycho-educational program and received equivalent clinical support regardless of technology allocation. At the conclusion of the 24-week RCT, participants had the option of switching their insulin delivery modality. Access to CGM sensors continued beyond the RCT for those randomised to the RT-CGM.

Participants

Eligible participants were adults (aged 18-74 years) with type 1 diabetes and impaired awareness of hyperglycaemia (Gold score: ≥1). Participants were 96 adults: 64% women, aged 49±12 years, diabetes duration 29±12 years, full demographic and clinical characteristics are published elsewhere2. At 24 months, 20 (21%) participants were lost to follow-up.

Measures

Participants completed a survey booklet at 6-month intervals from baseline to 24-month follow-up, including the novel 26-item Diabetes QoL Questionnaire (QOL-Q); 4

Table 1. Diabetes QoL-Q composite scores by glucose monitoring and insulin device allocation

<table>
<thead>
<tr>
<th>Time point</th>
<th>Monitoring device allocation</th>
<th>Insulin device allocation</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SMBG</td>
<td>RT-CGM</td>
<td>P value</td>
</tr>
<tr>
<td>24 weeks</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>3.7±0.8</td>
<td>3.6±0.8</td>
<td>5.21</td>
</tr>
<tr>
<td>24 months</td>
<td>3.7±0.8</td>
<td>3.6±0.8</td>
<td>4.30</td>
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</tbody>
</table>

Conclusions

Education and 24-week support to reduce problematic hyperglycaemia was associated with significant improvement in overall diabetes-specific QoL at 24 weeks and at 2 years. Improvements were observed for most aspects of life, with the greatest change observed for perceived control over body weight and improved QoL-Q scores were observed across all groups, indicating no relative benefit of insulin pump over injections or continuance over conventional glucose monitoring.

References

1 Little et al. (2014) Diabetes Care, 37:2114–2122
2 Little et al. (2015) Diabetes, 64 (suppl 1)
3 Little et al. (2012) BMC Endocrine Disorders, 12:33

Acknowledgements

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