Prevalence of self-reported severe hypoglycaemia in adults with type 1 diabetes attending tertiary clinics in Melbourne

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Background & Aims

- Severe hypoglycaemia (SH) remains the greatest barrier to achieving optimum blood glucose control.
- The prevalence of SH varies between 0.2 and 5 events per person each year depending on individual characteristics.
- Our aims were:
  - to examine self-reported occurrence of SH in unselected adults with type 1 diabetes (T1DM),
  - to examine the associations between SH, clinical characteristics and psychological well-being.

Methods

440 adults with T1DM attended one of three clinics over a 12-week period and agreed to participate (response rate: 88%).
- Mean age 38±15 years
- 53% women
- 65% had a diploma or degree
- Mean diabetes duration 18±12 years
- Mean HbA1c 7.8±1.3%
- 25% were using an insulin pump

While awaiting the consultation with the endocrinologist, participants completed a brief questionnaire booklet, including validated scales and study-specific items:
- Frequency of SH (defined as you needed help/ were unable to treat yourself) in past 6 months
- The Gold Score, to assess impaired awareness of hypos (IAH)
- WHO-5 Well-being Index (WHO-5), to assess generic emotional well-being
- Problem Areas in Diabetes (PAID), to assess diabetes-related distress
- The Hypoglycaemia Fear Survey (HFS), to assess fear of hypoglycaemia

Results

Prevalence of SH in past 6 months

- Mean episodes per person: 0.5±1.5
- 78 participants (19%) reported having had at least one episode (range 1-20)
- This group experienced 194 episodes
- 10/78 (13%) experienced 40% of the episodes
- 91 (21%) were identified as having IAH

Association with demographic and clinical variables (Table 1)

- Compared to those who did not report SH, participants who reported having had at least one SH episode in the past 6 months:
  - were younger at diabetes diagnosis
  - had a longer diabetes duration
  - were more likely to have IAH
- No significant differences were observed for age, gender, HbA1c or mode of insulin delivery (insulin pumps)

Table 1: Associations between SH, demographic and clinical variables

<table>
<thead>
<tr>
<th></th>
<th>Severe hyp</th>
<th>No severe hyp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>37.5±12.4</td>
<td>37.5±12.0</td>
</tr>
<tr>
<td>Gender: female</td>
<td>43 (55.1)</td>
<td>185 (55.8)</td>
</tr>
<tr>
<td>Age T1DM onset</td>
<td>16.6±12.4</td>
<td>19.6±12.9</td>
</tr>
<tr>
<td>Diabetes duration: yrs</td>
<td>21.3±12.2</td>
<td>17.9±11.7</td>
</tr>
<tr>
<td>HbA1c %</td>
<td>7.9±1.1</td>
<td>7.6±1.3</td>
</tr>
<tr>
<td>Insulin pump use</td>
<td>16 (20.5)</td>
<td>93 (27.0)</td>
</tr>
<tr>
<td>IAH</td>
<td>35 (46.2)</td>
<td>50 (14.7)</td>
</tr>
</tbody>
</table>

*P<0.05 **P<0.01. Data are mean(SD) or N(%)

Conclusions

- The prevalence of SH in this unselected clinical population was around one episode per year, comparable with other studies.
- The majority of SH was experienced by a minority of participants, confirming the skewed SH occurrence reported elsewhere.
- The results confirm previous findings that diabetes duration and IAH are associated with SH, though not with age, gender, HbA1c or type of insulin delivery.
- There was a strong correlation between SH and diabetes-related distress, fear of hypoglycaemia and low general well-being.
- The results underline the need to review and revise glycaemic targets in this high risk group and/or implement educational interventions to restore hypoglycaemia awareness and reduce SH.

Key findings

- 1 in 5 adults with T1DM reported at least one episode of SH in the past 6 months.
- Experiencing SH is associated with IAH and longer duration of diabetes.
- SH is also associated with impaired psychological well-being (fear of hypoglycaemia, diabetes-related distress and impaired general well-being).

References


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