What drives patients?

A cross-sectional survey of the effects and fear of hypoglycaemia on individuals, workplace, and patients’ continued eligibility to drive

M Dømgaard MSc1; M Bagger MSc PhD2; N A Rhee MD3; C M Burton MD PhD4; B Thorsteinsson MD DMSc5
1Danish Diabetes Association, Odense; 2Corporate Public Affairs, Novo Nordisk A/S, Copenhagen; 3Clinical, Medical and Regulatory Affairs, Novo Nordisk Scandinavia AB, Copenhagen; 4Point Of Care Medical Consulting, Copenhagen; 5Nordsjællands Hospital, Department of Cardiology, Nephrology and Endocrinology, Hillerød; 6Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark

Corresponding Author:
Professor, consultant, Birger Thorsteinsson MD, DMSc, mail: birger.thorsteinssen@regionh.dk

AIM
The aim of the study was to investigate the effect and fear of hypoglycaemia on the individual, workplace, and patients’ continued eligibility to drive.

METHOD
CAWI (Computer Assisted Web Interviewing) among members of the Danish Diabetes Association with a diagnosis of type 1 or type 2 diabetes aged ≥ 18 years.
The survey was conducted from September to October 2012.
All analyses were performed using Statistical Analysis Software (SAS) version 9.1.

RESULTS

Frequency of hypoglycaemia

<table>
<thead>
<tr>
<th></th>
<th>Total (3117)</th>
<th>TIDM (1065)</th>
<th>T2DM (2052)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulin (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Insulin (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild hypoglycaemia</td>
<td>0.8±1.8*</td>
<td>1.9±2.4</td>
<td>0.6±1.3</td>
</tr>
<tr>
<td></td>
<td>67.1%</td>
<td>98.5%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>0.2±0.9</td>
<td>42.7%</td>
<td></td>
</tr>
<tr>
<td>Severe Hypoglycaemia</td>
<td>1.2±0.7</td>
<td>2.9±1.7</td>
<td>0.6±4.2</td>
</tr>
<tr>
<td></td>
<td>20.7%</td>
<td>69.8%</td>
<td>16.4%</td>
</tr>
<tr>
<td></td>
<td>0.1±1.6</td>
<td></td>
<td>3.5%</td>
</tr>
<tr>
<td>Nocturnal Mild Hypoglycaemia</td>
<td>0.2±0.8</td>
<td>0.4±1.0</td>
<td>0.1±0.6</td>
</tr>
<tr>
<td></td>
<td>46.5%</td>
<td>89.8%</td>
<td>45.4%</td>
</tr>
<tr>
<td></td>
<td>0.1±0.5</td>
<td></td>
<td>15.4%</td>
</tr>
<tr>
<td>Nocturnal Severe Hypoglycaemia</td>
<td>0.3±1.4</td>
<td>1.0±5.8</td>
<td>0.1±0.7</td>
</tr>
<tr>
<td></td>
<td>12.0%</td>
<td>31.3%</td>
<td>4.8%</td>
</tr>
<tr>
<td></td>
<td>0.1±1.4</td>
<td></td>
<td>0.5%</td>
</tr>
</tbody>
</table>

*Standard deviation (SD)

FEAR OF HYPOGLYCAEMIA

In patients who had experienced at least one episode of mild hypoglycaemia, 43% expressed fear of future episodes of mild hypoglycaemia. This compared with 76% of patients who had experienced at least one episode of severe hypoglycaemia expressing fear of future episodes of severe hypoglycaemia.

FEAR OF FUTURE HYPOGLYCAEMIA EVENTS

Patients at increased risk of severe hypoglycaemia events, but no significant correlation with the type of diabetes or treatment with insulin.

FEAR OF FUTURE HYPOGLYCAEMIA EVENTS

Fear of future hypoglycaemia events was not associated with the type of diabetes or treatment with insulin.

HYPOTREMIA CONSEQUENCES FOR THE INDIVIDUAL

Self-care strategies to avoid hypoglycaemia include maintaining higher blood glucose levels during the day or night (45.7%) and reducing physical activity (15.7%).

HYPOGLYCAEMIA AND DRIVING

In the total cohort, 23% of patients with a private driver license and 16% of patients with a HGV/commercial license would consider under-reporting of hypoglycaemia in order to retain their respective driver license.

Inappropriate self-care behaviours to avoid hypoglycaemia may negatively impact long-term treatment goals.

Few people take sick leave as a result of hypoglycaemia, but prolonged mental recovery of 4 hours or more may affect work productivity.

Compromising doctors’ roles as caregivers may ultimately lead to increased risk of hypoglycaemia, as patients may under-report severe hypoglycaemia thus preventing doctors from optimising diabetes therapy to avert hypoglycaemia.

Supported by: Novo Nordisk Scandinavia AB

Invited to participate in survey n=9,931

Online survey responders n=3,284

Diagnosis of ‘TIDM’ or ‘T2DM’ n=3,117

History of hypoglycaemia - CAWI Interview n=2,299

Diagnosis of ‘Other’ n=167

MILD HYPOGLYCAEMIA: low blood glucose event requiring self-treatment

SEVERE HYPOGLYCAEMIA: low blood glucose event requiring 3rd party assistance or resulting in loss of consciousness

TOTAL

Age (years) – mean ± SD 57±14 45±14 63±10 62±9
Male (%) 51.3% 43.6% 59.7% 53.3%
Diabetes Duration (years) – mean ± SD 13±11 21±13 13±8 7±6

Supported by: Novo Nordisk Scandinavia AB