Cost of hypoglycaemia in patients with diabetes in Poland

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OBJECTIVES
To estimate indirect and selected direct costs of hypoglycaemia in patients with type 1 and type 2 diabetes in Poland

METHODS
This study was conducted at 4 Polish diabetes centres: 2 urban and 2 suburban. An anonymous questionnaire comprising 35 questions was used in direct interviews. Data were analysed in a population of 380 patients with diagnosed diabetes who experienced severe (requiring third-party support) or/ and non-severe hypoglycaemia. Indirect costs were estimated using a human capital approach based on Lost Gross Domestic Product (GDP) and lost gross earnings. Additional estimations of direct costs attributable to a hypoglycaemic event were based on medical resources used and their unit prices. Fear of hypoglycaemia was estimated using a visual analogue scale (VAS).

RESULTS
An average total monthly cost of severe hypoglycaemia was 699.77 EUR mostly driven by hospitalization and 40 EUR in the case of non-severe episodes. Of the studied population 23% were professionally active. Average time lost was 3.85 hours for an absenteeism cost per month of 16.27 EUR (GDP lost) and 16.99 EUR (lost earnings) per person per month. Of employed patients 52.38% reported reduced productivity while at work (presenteeism), with estimated value of 14.88 EUR and 15.53 EUR per patient per episode according to GDP and earnings lost respectively. Indirect costs related to sick-leaves and hospitalizations were not reported. 58% of patients expressed fear of hypoglycaemia.

Indirect Costs

**Absenteeism: monthly**
- Average number of work hours lost due to a hypoglycaemia: 3.85 h (SD: 2.7)
- Individuals who have missed hours at work stand for 36.95% of working people in the study population.

**Workers’ absenteeism costs per month:**
- Based on GDP: 251.54 EUR (per person: 18.27 EUR)
- Based on average gross salary: 255.86 EUR (per person: 19.99 EUR)

**Presenteeism due to a single hypoglycaemia**
- Average productivity loss due to a single hypoglycaemia episode: 44.09% (SD: 38.43)
- Patients who have reported productivity/loss stand for 53.38% of working people in the study population.

**Lost productivity costs:**
- Based on GDP: 227.51 EUR (per person: 16.98 EUR)
- Based on average gross salary: 261.75 EUR (per person: 15.53 EUR)

**Indirect costs related to sick-leaves and hospitalization in the working-age population were not reported in the study.**

Direct Costs

Total expense (EUR) of all patients for a given medical intervention type in the study population

<table>
<thead>
<tr>
<th>Type of Intervention</th>
<th>Cost (EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalization</td>
<td>478.05</td>
</tr>
<tr>
<td>Emergency medical services</td>
<td>731.83</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>119.51</td>
</tr>
<tr>
<td>Diabetology consultations</td>
<td>79.64</td>
</tr>
</tbody>
</table>

Social perspective: patient’s daily and monthly expenditures on antidiabetic medicines

<table>
<thead>
<tr>
<th>Type of Medication</th>
<th>Daily Cost (EUR)</th>
<th>Monthly Cost (EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulin</td>
<td>0.98</td>
<td>29.37</td>
</tr>
<tr>
<td>Oral antidiabetics</td>
<td>0.31</td>
<td>9.01</td>
</tr>
</tbody>
</table>

CONCLUSIONS
Hypoglycaemic episodes are associated with economic consequences for patients and employers. Hypoglycaemia negatively affects work productivity, patients’ presence at work and mental health and well-being.

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