Background

Type 2 diabetes mellitus (T2DM) is the most common form of diabetes, accounting for 92% of cases in France. Since 2010, T2DM has been associated with the highest prevalence among all chronic diseases in France, with the number of patients almost doubling in the past decade.4

Inadequate glycemic control as a result of T2DM is an important issue for patients as it can lead to microvascular complications (eye, nerve and kidney damage) and macrovascular complications (heart disease, stroke and peripheral arterial disease of lower extremities). In France, it has been reported that 42.3% of patients do not achieve good glycemic control.4,5 Consequently, T2DM is the leading cause of blindness,2,6 amputation7 and dialysis in France.3

In order to achieve adequate glycemic control, T2DM patients may require treatment intensification with insulin. However, the complexity associated with treatment intensification may create barriers in treatment adherence and subsequent glycemic control.

Objective

To assess patient-perceived barriers and behaviours related to intensification of treatment in insulin-treated T2DM in France.

Methods

Online study questionnaire

The study participants from France were adults with T2DM treated T2DM.

The study specifically considered patients’ experience with insulin, their preferences regarding insulin injection and the risks/benefits.

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Results

Demographics

302 people with T2DM from France (59% male, mean age 50 years) completed the survey (Table 1).

The mean duration of T2DM since diagnosis was 11 years and the mean duration of insulin treatment was 6 years.

Mean body mass index (BMI) was 29 kg/m².

Of the 230 (76%) who knew their HbA₁c, 29% (66/230) were uncontrolled (defined as HbA₁c ≥ 7.5% [58 mmol/mol]) in this study.

Patient experience with insulin

The treatment regimens used by the 302 respondents were basal-only insulin 45% (n=137); bolus-only insulin (short-acting) 24% (n=73); basal-bolus insulin 24% (n=73); premix insulin 5% (n=16); other 2% (n=6).

More than half of respondents (397/53%) using basal-bolus insulin reported injecting bolus insulin at least 3 or more times a day, in addition to their basal insulin.

More than three-quarters of respondents (78%; 237/302) reported ever having a minor (non-severe, self-managed) glycaemic event, of which 46% (111/237) reported events that occurred once a week or more (Figure 1). The average number of reported minor hyperglycaemic events per year was 33.9. 32% (98/302) of respondents reported ever having a major (severe) glycaemic event (requiring assistance from another person or medical professional), of which 97% reported at least one occurrence within the past 12 months.

Figure 1 Minor (non-severe, self-managed) glycaemic events in people with T2DM (N=302)

Table 1 Participants demographics (N=302)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean (%)</th>
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<tbody>
<tr>
<td>Age (years)</td>
<td>50</td>
</tr>
<tr>
<td>Duration of T2DM since diagnosis (years)</td>
<td>11</td>
</tr>
<tr>
<td>Duration of insulin treatment (years)</td>
<td>6</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>29.0</td>
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<tr>
<td>Living alone (%)</td>
<td>24.0</td>
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<tr>
<td>Have a college or university degree (%)</td>
<td>44.0</td>
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<tr>
<td>In paid employment or self-employed (%)</td>
<td>49.0</td>
</tr>
<tr>
<td>Monthly household income before tax ≤ 2000€ (%)</td>
<td>25.0</td>
</tr>
</tbody>
</table>

Figure 2 Major (severe) glycaemic events requiring help or medical assistance in people with T2DM (past 12 months; N=302)

Barriers to insulin intensification

31% (42/137) of respondents on basal-only insulin reported having tried another type of insulin regimen (premixed insulin, their preferences regarding insulin injection and the risks/benefits.

42% had previously tried more intensive regimens cited difficulty in handling multiple daily injections, risk of weight gain and risk of hypoglycaemic events as the reasons for reverting to basal-only insulin treatments.12 Furthermore, according to a patient-perceived study of different aspects of T2DM therapy, patients had the highest willingness-to-pay values for reductions in number of daily injections, avoidance of weight gain and hypoglycaemic events.11

Factors such as increased risk of weight gain and hypoglycaemia, polypharmacy and complexity of treatment regimens have been shown to reduce adherence to T2DM medication,13 which is a significant predictor of glycemic control.10

More convenient and patient-friendly treatments with a lower number of daily injections, lower risk of weight gain and hypoglycaemia, and simpler dosing systems could be well-perceived by T2DM patients and might help overcome barriers to insulin intensification.

References

A full reference list is provided in the accompanying handout.

Conclusions

Almost a third of all respondents who were aware of their HbA₁c levels were uncontrolled on their current treatment regimen, making them potential candidates for insulin intensification.

The main barriers to insulin intensification reported by T2DM patients on basal insulin were:

- Number of daily injections
- Difficulties in figuring out the right dosage of basal insulin for meals
- Fear of weight gain.

Insulin intensification regimens with fewer injections, a simple dosing system and reduced risk of weight gain, pain or discomfort, and hypoglycaemia may help patients who are uncontrolled on basal insulin overcome these barriers to intensification and achieve target levels of HbA₁c.