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Type 2 diabetes, basal insulin and the experience of hypoglycaemia: Insights from the patient perspective

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Aim of the study

This survey aimed to explore the experience of patients with type 2 diabetes taking basal insulin and to determine the impact of injection frequency on hypoglycaemia, glucose control and adherence.

Methods

An on-line survey consisting of 30 questions was used to assess the experience of patients with type 2 diabetes taking basal insulin only. Questions examined adverse events, dose adjustment and resource use. Patients also completed two patient reported outcome measures; the status version of the Diabetes Treatment Satisfaction Questionnaire (DTSQs) and the Morisky Medication Adherence Scale (MMAS 8 Item). The focus of this poster presentation is on the responses to the questions related to hypoglycaemia and its impact. Injection frequency is explored in this and in the context of treatment adherence.

Criteria for inclusion

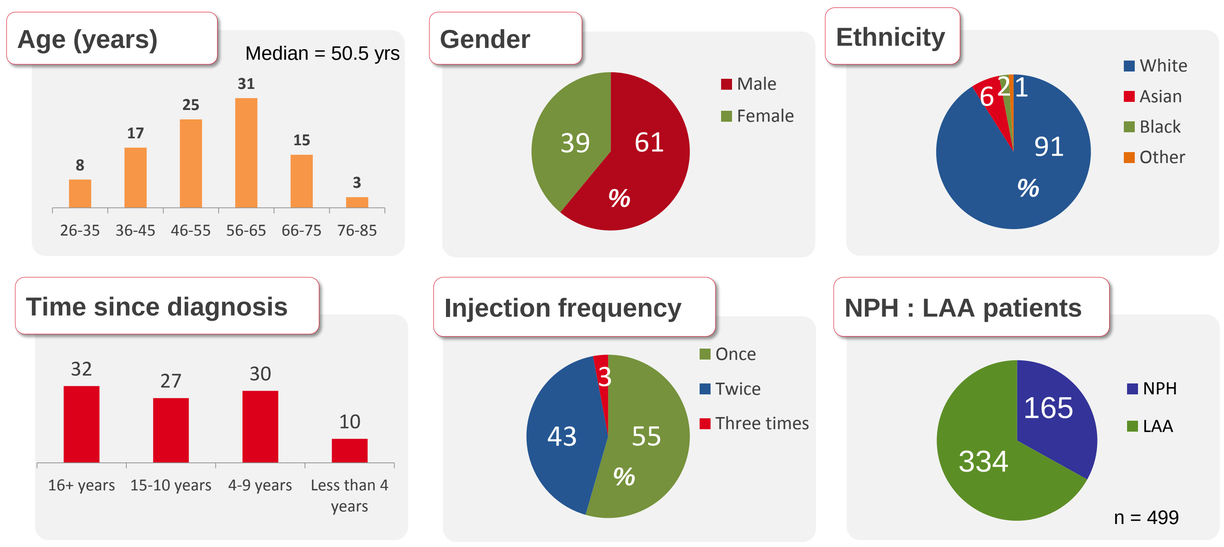
- English literate adult patients medically diagnosed with Type 2 diabetes.
- Taking long–acting analogue (LAA) or NPH (neutral protamine Hagedorn) insulin.
- Basal-bolus patents were excluded to avoid confounding from short acting insulin.
- Informed consent was gained from those agreeing to take part, stating that the data would be anonymised and published.

The survey was conducted on-line in the UK during July 2014.

Demographics

A total of 499 patients were recruited to the survey. The demographic and patient characteristics of the survey participants are presented in Figure 1.

Figure 1: Demographic and patient characteristics

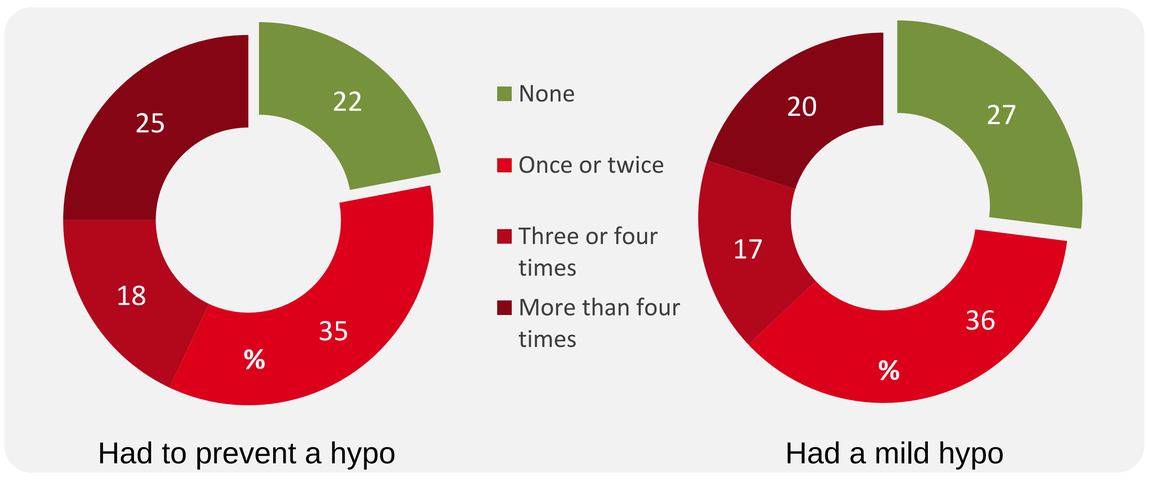


Results

Hypoglycaemia

- ~ 3/4 of participants had a mild event or had to prevent one in the last year Figure 2.
- 68% (262/387 of these incidents occurred mainly during the day.
- 8% (39/499) of patients had to call an ambulance at least once in the last year.
- A small percentage (5%, 24/499) of patients required hospital admission following an event and of these 75% (18/24) had been admitted twice or more.

Figure 2: Hypoglycaemia frequency in the last 12 months



56% of patients did not always report hypos to a heath care professional. This was often due to feelings of resignation or self-reproach (Table 1)

Table 1. Reasons for not reporting hypos	%
It's just part of having diabetes	52%
There's nothing they can do	26%
It was probably my fault	21%
Don't think it's important	20%
Worried I might lose my driving license	12%

Dose adjustment

- 78% (390/499) had received instructions on how to adjust the daily amount of insulin.
- Fear of hypo was cited by 40% (156/390) of these patients as a barrier to titration.
- The majority of patients felt either very confident (59%, 231/390) or fairly confident (34%, 133/390) to make adjustments but only a quarter to one third (range 94/390 to 144/390) adjusted their insulin when planning different activities.
- 48% (1897/390) ("sport or taking exercise") to 59% (113/390) ("general activities") never adjusted their insulin in advance.

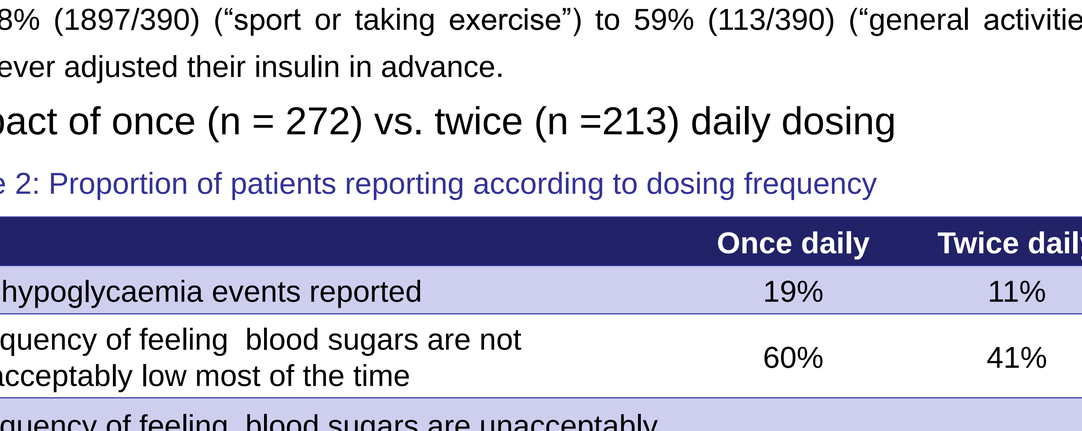
Impact of once (n = 272) vs. twice (n =213) daily dosing

Table 2: Proportion of patients reporting according to dosing frequency

	Once daily	Twice daily
No hypoglycaemia events reported	19%	11%
Frequency of feeling blood sugars are not unacceptably low most of the time	60%	41%
Frequency of feeling blood sugars are unacceptably high most of the time	21%	28%
HbA1c ≤ 7.5%	49%	41%
Very satisfied' with treatment	61%	52%

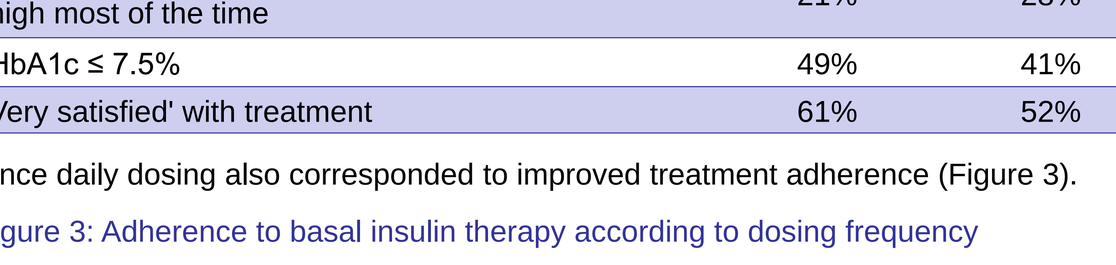
Once daily dosing also corresponded to improved treatment adherence (Figure 3).

Figure 3: Adherence to basal insulin therapy according to dosing frequency



Of the one in six patients (17%, 83/499) who changed their insulin, only 11 people (13%) felt as though they led that decision (Figure 4). Switches were generally for glycaemic target (43%, 36/83) or side effect reasons (26%, 22/83). 10% (8/83) of people didn't know why they had been switched.

Figure 4. Proportion of people citing different decision makers for insulin switches



Conclusions

The high prevalence of hypoglycaemia, under-reporting of events and attitudes towards them coupled with the finding that very low percentages of patients felt empowered in treatment decisions is disappointing. It may be the case that shared-decision approaches including greater patient involvement coupled with once-daily regimens could lead to better patient satisfaction and treatment adherence. Selection bias may be present in this survey which was internet driven. Nevertheless, this work provides a unique opportunity to consider a mainly working age population, an aspect which impacts on societal values of health, and one not usually examined in this area.

Disclosures: RH is an employee of Sanofi.
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References: DTSQs: Diabetes Metab Res Rev 2002; 18: S64–S69. MMAS 8 Item: Patient Preference and Adherence 2014:8 873–882
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