Treatment of type 2 diabetes: learning from patients' preferences

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Treatment of type 2 diabetes: learning from patients' preferences

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Background and aims: T2DM patients' preferences are not adequately considered by diabetologists, rarely checking patients' adherence. A critical issue is the passage from oral to injectable therapy, perceived as a non-return step, marking disease progression , associated with insulin use, blood glucose monitoring and complications. This is no longer the case with GLP-1 receptor agonists (RA). We aimed to determine patients' preferences whenever treatment intensification is needed to achieve a satisfactory metabolic control.

Materials and methods: We tested preferences using the Delphi method and the procedures of Discrete Choice Experiment (DCE). We considered the following variables, covering the peculiar aspects of most recent antidiabetic drugs: administration route (oral *vs.* injectable), timing (daily *vs.*weekly), type of device (single-dose, disposable *vs.* multidose, to be adjusted), effects on body weight (neutral *vs.* weight loss), possibility of adverse events (AEs): nausea and genito-urinary infections (UTI)(no risk *vs.* high risk for both AEs). According to these 6 variables, 22 possible scenarios were built (excluding impossible, dominant and dominated scenarios), transferred into 192 paired choices. These scenarios were proposed to 491 T2DM patients, naïve to injectable treatment (8 paired choices/patient) and to 171 cases treated by GLP-1RA (12 paired choices/patient). Patients were invited to select their preferences in any paired choice in the event that current treatment might require treatment intensification, independent of their actual metabolic control. The new proposed treatments were supposed to be equally effective.

Results: The two groups were well balanced as to BMI (mean, 29.5 and 29.7 kg/m^2, respectively), and age (66 and 64). In the overall sample, every attribute had a significant effect on patients' choice. While preferences expressed according to dosing frequency, risk of nausea and risk of UTIs were similar across groups (naïve vs. non-naïve), age (>65 vs. ≤65), sex (males *vs.* females) and BMI (>28 *vs.* ≤28), two interactions were highly significant ($p<0.01$): i) Type of delivery*Group, and ii) Weight change*BMI class, i.e., the preferred type of delivery was different according to previous experience with injectable GLP-1RAs, whereas weight loss was only significant in the presence of obesity (BMI ≥30 kg/m^2). Overall, the route of administration and type of delivery remained the most important attribute accounting for 1/3 of patients' preferences; the risk of UTI, nausea and dose frequency followed, each accounting for approx. 20% of preferences, and a small fraction was left to weight loss (6%). In a random effects logit regression model, patients' preferences were significantly modulated by the combination of different attributes, ranging from above 80% for the most preferred ones to only about 15% for the lowest. However, being naïve or non-naïve significantly affected the ranking of preferences, as indicated by Medications*Group interaction (Wald chi-square, 87.0; df, 22; $p<0.001$). The first three preferred medications (all injectable) were the same in both groups, but the order markedly differed for other scenarios, with preferences shifted towards injectable medications in non-naïve.

Conclusion: Previous experience with injectable GLP-1RAs favored patients' willingness to accept injectable treatment, particularly when coupled with a ready-to-use device and weekly dosing. However, this treatment was the preferred one also in the total sample, independently of treatment history.

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