Integrated personalized diabetes management (iPDM) improves satisfaction of patients with insulin-treated diabetes and their physicians: Results from the PDM-ProValue study program

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Objectives

Integrated Personalized Diabetes Management (iPDM) is supposed to support improvement of glycemic control by facilitating the therapeutic decision-making process.

The iterative 6-step, structured iPDM intervention program starts with 1) an initial assessment of the patient status and a demand-oriented education/training. Subsequently, 2) blood glucose (BG) data are collected according to a structured, therapy-adapted regimen, followed by 3) electronic documentation and 4) systematic data analysis. In step 5), current treatment is reviewed and adapted individually when indicated and finally 6) the treatment effectiveness is assessed at the patient’s next visit. The process is then run through again.

Bringing together the health care physician (HCP) and the patient in the therapeutic decision-making process, and integrating digital tools for data analysis and visualization are two major elements of the iPDM process.

A structured and somewhat tightly organized process as iPDM may improve therapy outcomes especially if the participating patients and physicians readily experience its beneficial effects.

Therefore, the PDM-ProValue study program was not only designed to determine if implementation of iPDM in daily practice improves glycemic control (primary endpoint); in addition, we investigated a set of additional clinical and psychological parameters and patient reported outcomes (PROs).

Here we report the results of patient and physician treatment satisfaction assessments as well as patient adherence.

Methods

The 12-month, prospective, controlled, cluster-randomized study program enrolled 907 eligible people with type 2 diabetes at 101 study sites (general practitioners and diabetes specialist practitioners) throughout Germany (1).

Study sites were randomized in the PDM arm (n=53) and in the control (CNL) arm (n=48).

Patients with BOT, SIT, CT or ICT therapy regimen were treated in the CNL arm with usual care; the respective study visits were conducted at baseline (visit 1), week 3 (visit 2), and months 3 (visit 3), 6 (visit 4), 9 (visit 5) and 12 (visit 6).

Patient reported outcome (PRO) questionnaires were administered at visits 1, 4, and 6. Physician questionnaires were administered at visits 1 and 6 to assess physician perceptions of the integrated PDM process.

Patients’ treatment satisfaction was assessed with the Diabetes Treatment Physician Satisfaction Questionnaire (DT-PSQ) (Figure 1).

Physician satisfaction was assessed with the newly developed Diabetes Treatment Physician Satisfaction Questionnaire (DTSQ), (DT-PSQ) (Table 1).

Results

Patients were highly comparable at baseline (e.g., socio-demography, diabetes history and treatment satisfaction). The same is true for the characteristics of randomized study sites and physicians (Table 1).

After 12 months, the iPDM group showed a greater improvement in treatment satisfaction (DTSQc: 12.2 vs. 10.4, delta=1.78, p=0.0005) and, the mean DT SB was higher in the iPDM (31.1) group compared to the control (CNL) group (30.0, delta=0.924, p=0.02) (Figure 2A).

Percentage of patients for whom the physicians stated an enhanced therapy adherence was greater in the iPDM group than in the CNL group, both compared to before study enrolment and compared to the first three months of study participation (Figure 2B).

Physician treatment satisfaction was markedly higher in the iPDM group compared to the CNL group. All scores of the DT-PSQ questionnaire showed a highly significant between-group difference at month 12 (Table 1).

Physicians indicated that the iPDM process has beneficial effects with regard to both the overall assessment and the effects of the diabetes therapy. In addition, they rated the ratio between efforts and benefits as good.

Physicians indicated that the iPDM process enabled them to gain an overview of BG values more quickly and that discussing BG values with the patient makes appropriate adjustments easier. This led to the overall assessment that physicians rated the discussion of BG values as more effective in the iPDM vs. CNL group.

Conclusion and outlook

These results document the considerable benefit of an iPDM approach. Providing structured guidance together with a low-threshold digital solution resulted in significant improvements in patient and physician treatment satisfaction and better patient adherence. Its implementation may help to overcome unsatisfactory glycemic control and clinical inertia.

The iPDM approach is an effective, practical procedure to provide a framework for identifying deficits regarding glycemic self-management and patient knowledge/training, guiding diabetes therapy by collecting and analyzing BG data and encouraging patient adherence due to patient-physician collaboration.

Expanding the process with adequate digital tools and opening it up for additional, sophisticated solutions for coaching or education can be key to addressing the needs of people with diabetes.