Original research

Primary care physician perspectives on basal insulin initiation and maintenance in patients with type 2 diabetes mellitus

Samaneh Kalirai[a,*], Judith Stephenson[b], Magaly Perez-Nieves[a], Michael Grabner[b], Irene Hadjiyianni[a], Caroline Geremakis[c], Roy Daniel Pollom[a], Beverly Reed[a], Lawrence Fisher[d]

[a] Eli Lilly and Company, Indianapolis, IN, USA
[b] HealthCore, Inc., Wilmington, DE, USA
[c] Biogen, Inc., Cambridge, MA, USA
[d] Department of Family and Community Medicine, UC San Francisco, San Francisco, CA, USA

ABSTRACT

Aims: To describe primary care physicians' (PCPs) perceptions of patient reactions and concerns about insulin initiation and identify opportunities for increased support.

Methods: Cross-sectional, online survey of PCPs prescribing basal insulin to adults with type 2 diabetes mellitus (T2DM). PCPs were identified from administrative claims of a large commercial health plan and descriptive results of PCP responses were reported.

Results: PCPs (N = 100) treated an average of 17 patients receiving insulin during a typical week. More than 85% of insulin initiation recommendations originated with PCPs. Most offered glucose monitoring instructions (96%) and advice on diet, exercise, and diabetes management (96%); 35% provided insulin titration algorithms; 93% reported that patients often or always took their insulin daily within 3 months of initiation; 31% of PCPs reported monthly office contacts with patients for the first 3 months; 16% reported no outreach efforts; fewer than 20% connected patients with support groups. When starting basal insulin, PCPs reported patients feeling personal failure regarding their diabetes treatment (33% often/always) and lacking confidence in their ability to manage insulin therapy (38% often/always).

Conclusions: Study results identify additional opportunities for assisting patients in making the transition to insulin, including more frequent direct outreach to monitor insulin usage.

* Corresponding author at: PharmD, Eli Lilly and Company, Indianapolis, IN 46285 USA. Tel.: (317) 902-6389.
  E-mail address: samaneh.kalirai@lilly.com (S. Kalirai).

1. Introduction

With prevalence doubling during the past 30 years, diabetes mellitus (DM) has become a global epidemic [1,2]. The estimated worldwide DM population of 415 million adults could reach 642 million by 2040; most patients have type 2 DM (T2DM) [3]. The number of glucose-lowering medication classes increased from three in 1995 to 12 by 2013 [4,5]. The newer agents offer better safety and efficacy along with benefits like weight loss and reduced risk of hypoglycemia [6,7], but many patients eventually need insulin to control their blood glucose [8–10] because of the pathogenesis and progressive characteristics of T2DM [11].

The American Diabetes Association (ADA)/European Association for the Study of Diabetes (EASD) consensus statement attributes "nearly universal response and theoretically unlimited efficacy" to insulin [5,10,12]. Multiple choices in basal and mealtime insulin analogs with improved safety compared to human insulin are currently available. Despite these benefits and treatment guidelines supporting insulin therapy, initiation is often delayed due to patient- and physician-perceived barriers [8,13,14]. Providers sometimes delay the initiation of insulin therapy until HbA1c levels exceed 10%, potentially exposing patients to substantial glycemic burden [15]. This can increase risk of diabetic complications and reduce quality-of-life and life expectancy [16]. In addition, delaying the intensification of insulin treatment has been shown to reduce the rate of HbA1c goal attainment [17]. After initiating insulin, only about 50% of patients reach glycemic targets [18].

Such low performance may be the result of poor adherence and persistence to treatment [8,13,19,20], along with a lack of insulin titration to ensure patients receive beneficial doses [21,22]. Patients are also reluctant to intensify or switch insulin treatment despite suboptimal outcomes [8], although flexible treatment regimens appear to improve adherence [13]. Overall insulin might be used by less than half of the DM patients for whom it is indicated [11].

Inadequate medication adherence also negatively impacts long-term health outcomes and associated costs [23,24]. Better understanding of the reasons for poor medication persistence can help physicians identify patients at risk of treatment failure and develop better treatment plans. Equally relevant is the need to assess physicians' perceptions of patients' reactions and concerns during insulin initiation and maintenance, and finding additional ways to aid transitions to insulin therapy [11,25].

With increasing T2DM prevalence primary care physicians (PCPs) treat more patients with the disease, and play a critical role initiating and maintaining them on insulin therapy [26–28]. This study surveyed US-based PCPs to better describe and understand their practice patterns and resources in the management of patients with T2DM initiating basal insulin. We also sought to describe physicians' perceptions of patient reactions and concerns during insulin initiation and to identify additional opportunities for support that may help patients make the transition to insulin.

2. Methods

2.1. Study design and data source

This was a cross-sectional internet survey of PCPs who prescribed basal insulin analogs (i.e., insulin glargine or detemir) to adults with T2DM between 01 January, 2013 and 03 July, 2015 (intake period). PCPs were defined as physicians in family medicine, internal medicine, or geriatrics. They were identified from outpatient pharmacy claims in the HealthCore Integrated Research Database, a large administrative claims database with claims from 14 regional health plans constituting one of the largest commercially insured populations in the US. The study protocol and all the materials seen by PCPs (survey and recruiting fax) were approved by the New England Institutional Review Board prior to the commencement of survey activities.

2.2. PCP selection

PCPs were selected by calculating the number of basal insulin analog pharmacy claims that were submitted by each physician during the intake period and ranking them in descending order of number of insulin claims. The top 3500 PCPs with the largest number of pharmacy claims for basal insulin analogs were selected as potential survey respondents. Fax invitations were sent to the 3437 PCPs with verified contact information. The targeted number of completed surveys was 100, and a rolling recruitment process was implemented until 100 PCP surveys were completed, at which time the survey closed. Each PCP received an honorarium for completing the survey.

2.3. Survey methodology

All surveys were completed online with a median completion time of 14 min. The survey consisted of three parts. The first part assessed PCPs' basal insulin initiation practices, which included their perceptions of patients' worries and concerns surrounding the initiation and use of basal insulin and the resources and training available to patients at that time. Part two dealt with PCPs' post-insulin initiation procedures, and part three assessed PCP demographics and practice characteristics.

2.4. Statistical analysis

Only descriptive analyses were performed in this study. Most survey questions were close-ended and many had Likert-type scale responses, which were presented as absolute or relative frequencies. Means, standard deviations (SD), and medians were calculated and presented from survey responses for continuous variables as applicable. All analyses were conducted using SAS version 9.4 (SAS Institute Inc., Cary, NC, USA).