Self-reported Barriers to Adherence and Persistence to Treatment With Injectable Medications for Type 2 Diabetes

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ABSTRACT

Purpose: This study explored the barriers that adult Americans experience when taking injectable medications for type 2 diabetes, from the time of filling the initial prescription through the decision to discontinue the medication.

Methods: An Internet-based survey was conducted in 2 waves among adult patients (N = 2000) who had received a physician prescription for insulin, liraglutide, or exenatide once weekly (QW), regardless of whether the prescription was filled by a pharmacy. In wave 1, patients were surveyed on their medication history and experience and, if relevant, the medication discontinuation process. Those still taking their injectable medication at the time of wave 1 were contacted 6 months later (wave 2, n = 585) to assess any changes in their medication experience.

Findings: Among patients who delayed filling their prescription by ≥1 week, cost was a common reason for delay for refilling of liraglutide (63%) and exenatide QW (49%). The most commonly reported barrier to maintaining injectable medication was injection concerns (42%) such as aversion to needles, pain, or needle size. Lack of perceived need was the most common reason for discontinuation for basal (47%) and prandial/premixed (44%) insulin. For liraglutide, the most common reason for discontinuation was experiencing an adverse event (33%); for exenatide QW, it was injection concerns (38%).

Implications: The diverse barriers we identified underscore the need for better patient–prescriber communication to ensure that newly prescribed injectable medications are consistent with a patient's ability or willingness to manage them, to appropriately set expectations about medications, and to address new barriers that arise during the course of treatment. (*Clin Ther*. 2016;38:1653–1664) © 2016 The Authors. Published by Elsevier HS Journals, Inc.

Key words: adherence, discontinuation, injectable medication, persistence, type 2 diabetes.

INTRODUCTION

Patients with type 2 diabetes typically fail to address hyperglycemia with diet and exercise and require pharmacotherapy for disease control.[1,2] Adherence, defined by the World Health Organization as "the extent to which a person's behavior-taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider," is necessary for disease control.[3] Nonadherence to antidiabetic medications results in poor long-term glycemic control and is consequently linked with diabetes-associated complications, more health care resource utilization, and higher costs.[4–9] Aikens and Piette[9] found a linear relationship between self-reported nonadherence and an increase in glycosylated hemoglobin levels measured 6 months later. Another study found that patients who were nonadherent to noninsulin antidiabetic medications, compared with adherent patients, were significantly more likely to be hospitalized or require an emergency department visit over a 1-year period.[7]

Medication nonadherence and nonpersistence, or discontinuation, have been shown to be particularly

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common among those taking injectable antidiabetic medications.[10] In a cross-sectional Internet survey of specialists and primary care physicians from 8 countries, including the United States, 73% of patients did not take insulin as prescribed.[11] Similarly, another analysis found those patients initiating treatment with glucagon-like peptide-1 receptor agonists (GLP-1RAs) had a 71% higher discontinuation rate in the first 6 months compared with those initiating saxagliptin, with discontinuation defined as a gap of ≥60 days without drug supply available as measured by using pharmacy claims.[12]

Nonadherence and nonpersistence to injectable antidiabetic medications are influenced by multiple factors such as tolerability, efficacy, cost of medications, complexity of a treatment regimen, and patient–provider interaction.[11,13–15] In particular, patients prescribed insulin have expressed facing additional difficulties in initiating and maintaining treatment that are not experienced by those taking only oral medications.[11,15] This issue is especially relevant because a national health interview survey conducted from 2010–2012 found that 29% of Americans with diabetes use insulin.[16] Past survey research analyzing injection burden with insulin has shown that patients think that injections are a serious burden, have a negative impact on quality of life, and would use injections more regularly if the pain could be relieved.[17]

However, to our knowledge, no previous studies have determined which of these difficulties are faced by patients initiating treatment with GLP-1RAs. The present study was designed to better understand the barriers to adherence and reasons for discontinuation that Americans with type 2 diabetes prescribed injectable medications face in multiple stages of their treatment, starting from the initial prescription through maintenance of the medication and finally to the decision-making process around discontinuation.

PATIENTS AND METHODS

Study Design

This study was a cross-sectional, Internet-based survey administered in 2 waves. Patients were recruited from all US census regions via the Harris Interactive Chronic Illness Panel or other third-party online research panels in the United States. These panels consist of participants who previously volunteered to complete health-based surveys, and they are not affiliated with any health care or insurance system. Survey invitations, including information for accessing the password-protected online survey, were e-mailed to panel members. Respondents eligible for the survey were US residents ≥18 years of age diagnosed with type 2 diabetes who reported ever being prescribed at least 1 of 4 injectable medication types: exenatide once-weekly (QW), liraglutide, basal insulin, or prandial/premixed insulin. These injectable medications were selected for study because they have a range of profiles in terms of dosing frequency, cost, adverse effects, and other attributes expected to be related to persistence. Exenatide QW is injected subcutaneously once weekly using a 23-gauge, 5/16″ needle.[18] Liraglutide is injected subcutaneously once daily, and pen needles are prescribed separately.[19] It is initiated at 0.6 mg per day for 1 week, and then titrated to a higher dose. Both exenatide QW and liraglutide can be administered any time of day, with or without meals.[18,19] The basal insulins that respondents reported receiving were insulin detemir and insulin glargine. These are administered once daily at the same time each day. The dose is individualized, and needles are prescribed separately. The prandial/premixed insulins reported by patients were insulin glulisine, insulin lispro, insulin human, regular human insulin, and insulin aspart.[20–27] These insulins can be injected with a pen device, using a vial and syringe, or via an insulin pump. Patient self-monitoring of blood glucose levels with dose adjustment is recommended.

Respondents who were prescribed a medication but did not have it filled by a pharmacy were considered eligible for relevant sections of the survey. Respondents were accepted until preset quotas for each medication and discontinuation status were filled ($N = 2000$). In cases in which patients stated that they had been prescribed >1 of the surveyed medications, patients were directed to answer questions about the medication type with the smallest number of respondents. We refer to the medication about which the patient answered questions as the "medication of interest."

In wave 1 of the study, patients were asked: (1) if they filled the medication of interest when first prescribed, time until filling the prescription, and, if filled, how long until they started taking it; (2) about their reactions to being prescribed an injectable; (3) for those initiating the medication of interest, if they discontinued using it; (4) for those discontinuing the