Half of Adults With Diabetes Intentionally Skip Insulin Injections

BY SHERRY BOSCHERT

Most adults with type 1 or type 2 diabetes intentionally skip insulin injections, and 20% skip them regularly, according to an online survey of 502 diabetic adults. The study is one of the first to identify factors that were associated with a greater likelihood of purposely omitting insulin shots at least occasionally, as 57% of respondents reported doing. The 388 respondents with type 2 diabetes were more likely to report intentional omissions of insulin injections compared with the 114 with type 1 diabetes, according to the report published online Jan. 26 (Diabetes Care 2010;33:240-5).

Respondents who were more likely to skip insulin injections were younger, had fewer adult children, had educational levels, or did not eat a healthy diet. Skipping insulin injections more frequently according to the survey participants who either had to take more daily injections, said the injections interfered with daily activities, or reported pain.

RISK OF MYOCARDIAL INFARCTION OR INCREASED ANGINA

Uncommonly, patients, particularly those with severe obstructive coronary artery disease, have documented increased frequency, duration, or severity of angina or vasospastic episodes on imaging studies. Beneficial effects observed on imaging studies may not reflect the clinical improvement observed in these patients. As the majority of telmisartan is eliminated by biliary excretion, patients with biliary obstructive disorders or hepatic insufficiency can be expected to have reduced clearance. Initiate telmisartan at low doses and titrate slowly in these patients.

Myocardial infarction and angina have occurred rarely in clinical trials with telmisartan or amlodipine as monotherapy or in combination. In these trials, the reported incidence of these events was similar in the telmisartan/amlodipine and placebo groups. When telmisartan was used in combination with a placebo-controlled trial, the incidence of myocardial infarction or increased angina was 0.1% in placebo-treated patients versus 0.2% in telmisartan-treated patients. The incidence of myocardial infarction or increased angina was 0.4% in placebo-controlled studies with telmisartan alone versus 0.2% in placebo-controlled studies with amlodipine alone. A transient hypotensive response is not a contraindication to further treatment, which may be continued without difficulty once the blood pressure has stabilized.

In general, telmisartan is well tolerated. However, because of the potential for vasodilation, it should be used with caution in patients who are volume-depleted. As the majority of telmisartan is eliminated by biliary excretion, patients with biliary obstructive disorders or hepatic insufficiency can be expected to have reduced clearance. Initiate telmisartan at low doses and titrate slowly in these patients. Patients and physicians should be aware, however, that dizziness may occur if the patient has sustained an intravascular volume decrease.

Hypotension

In patients with an active renal-angiotensin system, such as volume- and/or sodium-depleted patients (e.g., those with sepsis, hypovolemia, or high doses of diuretics), symptomatic hypotension may occur after administration of telmisartan. Either correct this condition prior to administration of telmisartan, or treat the hypotension with fluid repletion and a reduced dose of telmisartan. If hypotension does occur, the patient should be placed in the supine position and, if necessary, given intravenous fluids. In patients with severe renal impairment (creatinine clearance ≤30 mL/min), symptomatic hypotension has occurred rarely (≥1% of patients treated with telmisartan).

Telmisartan

Anxiety, dizziness, fatigue, flatulence, constipation, gastritis, vomiting, dry mouth, hemorrhoids, pruritus, somnolence, nasopharyngitis, upper respiratory tract infection, and upper respiratory tract symptoms have occurred rarely in clinical trials with telmisartan. The incidence of nasopharyngitis was 2.7% in placebo-treated patients versus 1.2% in telmisartan-treated patients. The incidence of upper respiratory tract infections was 1.5% in placebo-treated patients versus 1.7% in telmisartan-treated patients which was not considered to be statistically significant.

Telmisartan has been evaluated for safety in more than 3700 patients, including 1900 treated for over 6 months and over 700 treated for over 1 year. Amlodipine has been evaluated for safety in more than 30,000 patients, including approximately 2000 treated for more than 1 year. Amlodipine had a similar incidence of adverse events as placebo in patients treated with telmisartan, amlodipine, and amlodipine/telmisartan. The rate of discontinuation of therapy due to adverse events in patients treated with telmisartan was 11% versus 10% in placebo-treated patients. The incidence of discontinuation of therapy in patients treated with telmisartan/amlodipine was 13% versus 12% in placebo-treated patients.

The incidence of adverse events was not dose-related in type 2 diabetes patients. Adverse events occurred more frequently in patients treated with telmisartan compared with patients treated with amlodipine. The most common reasons for discontinuation of therapy with TWYNSTA tablets were peripheral edema, dizziness, and back pain.

The incidence of creatinine and blood urea nitrogen was similar in patients treated with telmisartan and amlodipine compared with patients treated with placebo. The incidence of increases in creatinine and blood urea nitrogen was 0.7% in placebo patients versus 1.6% in telmisartan-treated patients and 1.3% in amlodipine-treated patients. In telmisartan-treated patients and placebo-treated patients, the incidence of back pain was 1.4% versus 0.8%, respectively.

Telmisartan has been shown to be effective in patients with diabetes. In a 52-week study, the incidence of adverse events was 21% in diabetes patients treated with telmisartan/amlodipine compared to 18% in diabetes patients treated with placebo.

In a pooled placebo-controlled trial involving 1014 patients treated with various doses of telmisartan (20-100 mg) monotherapy, the incidence of adverse events was 47.6% in placebo-treated patients versus 59.2% in telmisartan-treated patients.

In the placebo-controlled factorial design study, the incidence of adverse events was higher in patients treated with telmisartan plus amlodipine compared with placebo plus amlodipine compared with placebo alone. The incidence of adverse events was 47.6% in placebo-treated patients versus 38.5% in placebo plus amlodipine-treated patients versus 56.9% in telmisartan plus amlodipine-treated patients.

In the placebo-controlled factorial design study, the incidence of adverse events was 2.2% in all treatment arms, including placebo, telmisartan, amlodipine, and telmisartan plus amlodipine. The incidence of adverse events was 2.2% in placebo-treated patients versus 2.0% in telmisartan-treated patients versus 2.2% in amlodipine-treated patients versus 2.0% in telmisartan plus amlodipine-treated patients. The incidence of adverse events was 2.2% in placebo-treated patients versus 2.2% in telmisartan-treated patients versus 2.2% in amlodipine-treated patients versus 2.2% in telmisartan plus amlodipine-treated patients.

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or embarrassment from the injections. Physicians should work with patients to identify their issues around injecting insulin and give them the information or tools they need to address these barriers. Some of these barriers, suggested by Mark Peyrot, Ph.D., of the department of sociology, Loyola University Maryland, Baltimore, and his associates, can reduce pain or embarrassment. However, we have found that patients do not feel that their health care providers are giving them adequate assistance in managing these problems, even when they raise the issue with their providers, the investigators noted.

Risk factors for intentionally skipping insulin injections differed for patients with type 1 and type 2 diabetes, separate analyses found. In respondents with type 1 diabetes, a lack of a healthy diet, the number of daily insulin injections, and daily activities with daily activities were significantly associated with skipping insulin. In those with type 2 diabetes, age, education, income, pain, and embarrassment played greater roles in the risk for skipping insulin.

The investigators noted that insulin is used by more than 25% of patients in the United States who have diabetes. Non-adherence with insulin regimens has been associated with higher hemoglobin A1C levels and higher rates of hospitalization for diabetes-related complications.

Race and ethnicity were not associated with a likelihood of skipping insulin, contrary to findings in other studies, perhaps because the study controlled for the effects of income and education, or perhaps because the study did not have enough nonwhite participants. Whites comprised 73% of survey respondents who were recruited by e-mail from the Harris Interactive Chroni- llness Panel. Also contrary to some previous studies of adherence to insulin regimens, the current study found no significant association between omission of in-

Disability respondents were less likely to skip insulin injection, perhaps because they get more assistance with care or make a greater effort to attend to their health, the investigators speculated. They were not surprised that poor adherence with a healthy diet was asso- ciated with skipping insulin, as this has been reported before.

The present study suggests that intentional omission of insulin is a sub- Patients in the United States are less convinced of insulin’s effectiveness and more likely to blame themselves for needing it, compared with patients in other countries. The study used self-report measures and did not assess the motivations of patients who are relying on injection therapy, the researchers noted.