

Medication Concerns a Factor in Underuse

BY MIRIAM E. TUCKER

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Concern about harm from antihyperglycemic and antihypertensive medications is associated with their underuse among patients with diabetes, even after controlling for economic factors.

The finding, from a survey of 803 adults with diabetes in Flint, Mich., suggests that “Because medication concerns may directly influence cost-related underuse, improved illness outcome may be achievable by simultaneously addressing attitudinal and economic issues,” Dr. James E. Aikens and Dr. John D. Piette said in an article published in *Diabetes Care* (2009;32:19-24).

The survey included 803 diabetes patients using antihyperglycemic agents, of whom 573 also used antihypertensive medications. Slightly more than half of the total group was black, and slightly more than half was female. More than a third had low functional health literacy (FHL) as measured by validated scales. The patients had a mean hemoglobin A_{1c} (HbA_{1c}) of 7.8% and mean blood pressure of 139/83 mm Hg.

Patients’ treatment beliefs were measured with the well-validated Beliefs About Medicines Questionnaire (BMQ), with separate versions for the two types of medications. Five items are designed to elicit perceived medication necessity—such as “My health, at present, depends on my [diabetes or blood pressure] medication.” Six items pertain to concern, such as “I sometimes worry about the long-term effects of my ... medicine.” For each item, patients choose from a 5-point response scale, ranging from “strongly agree” to “strongly disagree.”

Overall, perceived necessity was stronger than concern for both types of medication. Patients taking both types rated the antihyperglycemics as being both more necessary and more concerning than the antihy-

pertensive medication, although the effect sizes were relatively small, said Dr. Aikens and Dr. Piette of the University of Michigan, Ann Arbor.

Perceived necessity for one or both types of medication was stronger among participants who were younger, female, had more comorbid conditions, were prescribed more medications, and were prescribed insulin. Perceived harmfulness of one or both types of medications was stronger among those who were younger, were black, were of low income, were diagnosed with more comorbid conditions, were dissatisfied with medication information, and were of low FHL.

“Given that perceived discrimination and distrust in health care have been documented in African Americans with diabetes, the most culturally sensitive interventions will be those that deal directly and skillfully with medication fears,” the investigators commented.

After adjustment for age, sex, ethnicity, and income, perceived need for antihyperglycemic medications was independently associated with having a greater number of prescriptions and being prescribed insulin. In contrast, concern about antihyperglycemic medications was associated with dissatisfaction with medication information, low FHL, and high out-of-pocket prescription costs.

Perceived need for antihypertensives—after adjustment for age, sex, ethnicity, and income—was associated with more comorbid conditions and satisfaction with medication information. As with antihyperglycemics, concern about antihypertensives also was associated with dissatisfaction with medication information and low FHL.

Medication underuse was measured by two questions: “In the past 12 months, have you ever taken less of your [diabetes/hypertension] medication than prescribed by your doctor because of the cost?” and “Many people do not take their prescription medication exactly

as prescribed by their doctor. In the past year, have you ever taken less of your ... medication for any reason other than the cost?”

Almost half (47%) of participants reported antihyperglycemic underuse, of whom about a third (16.5% of the total) reported cost-related underuse. However, concern about the medications was associated with both cost-related and non-cost-related underuse. Neither perception of medical necessity nor concern regarding antihyperglycemics was significantly related to HbA_{1c}, although the relationship with concern nearly reached significance, they noted.

Of those prescribed antihypertensives, 31% reported underuse, with cost being a reason for about half (15%) of the total group. As with the antihyperglycemics, concern was significantly associated with both types of underuse, but perceived necessity was not. Concern about potential harm from antihypertensive medications was significantly related to higher blood pressure.

Interestingly, perceived necessity was associated primarily with medical factors—such as number of comorbidities and insulin use—while perceived harmfulness was more strongly associated with psychosocial factors such as FHL and dissatisfaction with the information the patients had received. “Because only the latter belief relates to adherence and outcomes, it seems far more important to address key psychosocial factors in nonadherent patients, rather than assume that they fail to grasp the medical necessity or treatment,” Dr. Aikens and Dr. Piette concluded.

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Death Risk Similar for Men With Diabetes, Heart Disease

BY DAMIAN McNAMARA

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Men with type 2 diabetes mellitus and no cardiovascular disease and men who experience a first acute cardiovascular event were found to have similar long-term cardiovascular and total mortality risks in a large, longitudinal study.

In addition, the risk of cardiovascular death was more than three times greater for men in either group, compared with matched controls with neither diabetes nor cardiovascular disease, Dr. Gilles R. Dagenais of the University Laval, Quebec City, and his associates reported in the *Canadian Medical Association Journal* (2009;180:40-7 [doi:10.1503/cmaj.071027]).

They looked at the issue of whether diabetes alone is associated with a similar long-term increase in cardiovascular mortality risk, compared with a first cardiovascular event. There is no consensus in the literature, with some studies supporting the association (*Lancet* 2006;368:29-36; *Diabetes Care* 2005;28:1588-9) and others not (*Circulation* 2004;109:855-60; *BMJ* 2002;324:939-42).

The current study differed from previous research, because it looked at incident cases of diabetes and cardiovascular disease instead of prevalence. In addition, the study also excluded men with previous angina or intermittent claudication, conditions known to in-

crease cardiovascular disease risk.

Dr. Dagenais and his colleagues at University Laval and the University of Montreal assessed 4,376 men at baseline in 1973 or 1974 and over time. The men were participants in the longitudinal Quebec Cardiovascular Study and were aged 35-64 years at entry in the current study. Blood pressure, cholesterol levels, family history of coronary artery disease and stroke, self-reported smoking status, and other factors were assessed in person in 1980 and 1985 and via standardized telephone or mail questionnaires in 1990 and in 1997 or 1998.

During the 24 years of follow-up, 137 men had a new diagnosis of type 2 diabetes without any previous cardiovascular disease. Another group of 527 men without diabetes experienced a first nonfatal cardiovascular event. Events included myocardial infarction in 354 patients, unstable angina in 58 men, and stroke in 115. Researchers compared survival with an age-matched group of 627 controls without diabetes or a cardiovascular event.

A total of 18 men experienced both a new diagnosis of diabetes and a cardiovascular event during the study. This group, however, was excluded from survival comparisons because of its small number.

The researchers found that men with cardiovascular disease only had a significantly higher risk of cardiovascular death

during the first 5 years, compared with those with diabetes only (age-adjusted relative risk 2.03). Thereafter, researchers found no statistically significant difference in cardiovascular or total mortality between the two groups. “A longer duration

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of diabetes likely aggravates the atherothrombotic process that is associated with diabetes,” the authors wrote.

The study highlights the high risk of death associated with diabetes and underscores “the importance of optimal management of this disease and its associated cardiovascular conditions, as well as the importance of pursuing research to prevent type 2 diabetes altogether,” the researchers wrote.

A total of 23% of men with diabetes and no cardiovascular disease had a cardiovascular-related death during follow-up, compared with 7% of controls (RR 3.11). In addition, death from any cause occurred in 44% of this group, compared with 22% of controls (RR 1.89).

In the group of men with incident cardiovascular disease and no diabetes, 25% experienced cardiovascular death during follow-up (RR 4.46). In addition, 38% died from any cause (RR 2.19).

The authors noted some caveats and limitations, including “major changes in risk factors” during the study period. For example, between 1974 and 1985, smoking declined from 74% to 30% for the group of men with diabetes. At the same time, blood pressure for these men declined from 146/90 mmHg to 138/81 mmHg. In addition, smoking declined from 76% to 40% among men with cardiovascular disease.

Other limitations of the study included the fact that it consisted of white men only and that diabetes was self-reported by two-thirds of participants. Another limitation was that some men in the no-diabetes group may have had impaired fasting glucose or glucose intolerance, factors known to increase cardiovascular risk. Also, the research was conducted before important pharmacologic interventions to lower cardiovascular disease risk entered clinical practice, the authors noted.

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