

Metformin Underused in Patients With Prediabetes

Troy Brown, RN | May 01, 2015

Metformin was prescribed for only 3.7% of patients with prediabetes, even though it can help prevent the onset of type 2 diabetes, according to a new retrospective cohort analysis.

"We were surprised to see just how low the [prescription] rates were, particularly among the highest-risk individuals, where evidence for metformin use is strongest," lead author Tannaz Moin, MD, from the David Geffen School of Medicine at University of California, Los Angeles, told *Medscape Medical News*.

"Despite inclusion in national guidelines for more than 6 years and proven long-term tolerability, safety, and cost-effectiveness, the prescription of metformin in the real-world clinical approach to diabetes prevention remains unclear," Dr Moin and colleagues write.

They report their findings in the April 21 issue of the *Annals of Internal Medicine*.

Very Little Attention Paid to Use of Metformin for Diabetes Prevention

About one in three Americans has prediabetes, which occurs when the blood glucose is higher than normal but not high enough to be considered full-blown type 2 diabetes.

"Both metformin and lifestyle interventions have been shown to reduce risk of progression to diabetes," Dr Moin explained.

The latest data from the ongoing US Diabetes Prevention Program (DPP), reported last summer, showed that randomizing overweight or obese people at high risk for type 2 diabetes to intensive lifestyle change or giving them metformin could reduce or delay the development of the disease, for as long as 15 years in some cases.

And while it would be ideal for everyone at risk for diabetes to participate in lifestyle interventions, efforts to translate these into practice have led to variable levels of uptake, Dr Moin said.

Meanwhile, "very little attention has been focused on the translation of evidence to support metformin use for diabetes prevention," she noted.

In 2008, the American Diabetes Association (ADA) updated its "Standards for Medical Care in Diabetes" guidelines to include metformin use in patients aged less than 60 years who are at very high risk [of diabetes], are very obese (body mass index [BMI] ≥ 35 kg/m²), or have a history of gestational diabetes.

The guidelines also say clinicians can consider metformin in those with impaired glucose tolerance, impaired fasting glucose, or an HbA_{1c} of 5.7% to 6.4%.

In their study, Dr Moin and colleagues analyzed data from a national sample of 17,352 adults aged 19 to 58 years with prediabetes between 2010 and 2012 who were insured for 3 continuous years to determine the percentage who were prescribed metformin.

Over 3 years, metformin was prescribed for only 3.7% (n = 647) of patients with prediabetes.

Among those with a BMI ≥ 35 kg/m² (n = 391) or gestational diabetes (n = 121) the prevalence of metformin prescription was 7.8%. This is "the group for which the ADA guideline places the most emphasis on treating prediabetes with metformin," the authors write.

However, this still means that fewer than one in 12 of these high-risk patients, specifically identified by national guidelines, received metformin, they note.

After they adjusted for age, income, and education, the predicted probability of receiving a metformin prescription was almost twice as high among women (4.8%) as it was among men (2.8%) ($P < .001$) and among obese participants (6.6%) compared with nonobese participants (3.5%) ($P < .001$).

And the predicted probability of receiving a metformin prescription was 1.5 times higher among those with two or more comorbid conditions (4.2%) compared with patients with no comorbidities (2.8%) ($P = .001$).

"Metformin has long-term safety data and is readily accessible under most prescription drug plans. Thus, it is a tangible option to engage in diabetes prevention, particularly among individuals at highest risk (those less than 60 years of age, with BMI ≥ 35 kg/m² or women with history of gestational diabetes)," Dr Moin told *Medscape Medical News*.

Physicians and Patients Should Be Educated About Metformin

"Our findings highlight a real opportunity to enhance the translation of existing evidence surrounding diabetes prevention for large segments of the US population with prediabetes," Dr Moin explained.

"Patients with prediabetes should be educated about all evidence-based treatment options for diabetes prevention and their relative risks vs benefits in order to make the treatment decision that best aligns with their preferences and levels of risk," she added.

"Metformin represents an ideal opportunity to critically examine these issues, and we hope this study can bring the importance of this to light," she said.

She and her colleagues add that the reasons for low metformin use are not entirely clear, "and future studies should examine an array of patient-, provider-, and organization-level factors that may contribute to underuse.

"For providers, barriers may include lack of knowledge about the DPP or related evidence. Even when the randomized clinical-trial evidence is fully realized, there is little guidance for the application of these findings in real-world settings," they observe.

Also, metformin is not approved by the US Food and Drug Administration (FDA) for prediabetes, which may increase hesitancy to prescribe it "off label" in this context, they add.

Dr Moin said the FDA is unlikely to approve metformin for the indication of prediabetes because it is available generically and it may be too costly for the holder of the original new drug application (NDA) to file a supplemental NDA for the new indication of prediabetes. Only the holders of the original NDA can file for approval for new indications, she explained.

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