

Metformin is a unique drug

Treating prediabetes with metformin" (April 2009) was a very good article.¹ Prediabetes—either impaired fasting glucose, impaired glucose tolerance, or both—can result in overt diabetes within a few years. The key pathophysiologic factor for prediabetes and the subsequent onset of type 2 diabetes is insulin resistance. In normal subjects, insulin stimulates glucose uptake by skeletal muscle cells, adipose tissue, and hepatocytes. In insulin resistance, these tissues fail to uptake glucose molecules and because of compensatory mechanisms more and more insulin is secreted by β -cells, causing hyperinsulinemia. As a result of continuous pressure, β -cells ultimately fail to produce an adequate insulin response to glucose, leading to type 2 diabetes. Lifestyle modifications, such as diet and physical exercise, offer great value to the reduction of insulin resistance and the prevention of new onset type 2 diabetes. And as a drug therapy, metformin, by reducing hepatic glucose production and increasing insulin sensitivity in peripheral tissue, can substantially reduce the process of transforming prediabetes to type 2 diabetes. Insulin resistance is also referred to as insulin resistance syndrome, which includes type 2 diabetes, hypertension, dyslipidemia, obesity, and others. Metformin is not only effective in preventing onset of overt diabetes, but also might have preventive value on hypertension, dyslipidemia, and obesity. I think every patient who is diagnosed with prediabetes should start metformin along with lifestyle interventions to reduce onset of not only type 2 diabetes, but other metabolic disorders.

—Gauranga C. Dhar MD DTM&H
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Reference

1. Lilly M, Godwin M. Treating prediabetes with metformin. Systematic review and meta-analysis. *Can Fam Physician* 2009;55:363-9.

Response

Dr Dhar, thank you for the review of the pathophysiology of prediabetes, diabetes, and the metabolic syndrome. I have been using metformin in my patients with prediabetes for a few years now. It does remain true, of course, that exercise and diet are better solutions, but compliance is a problem with those modalities.

Using metformin to treat prediabetes¹ has not yet been recommended in the various diabetes guidelines published in many different countries. Perhaps this is owing to the question of whether the effects we see are preventive effects or simply treatment effects as well as the lack of data showing a benefit to cardiovascular morbidity and mortality by using metformin early on (at the prediabetes stage). That study in particular needs to be done.

—Marshall Godwin MD MSc CCFP FCFP
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Reference

1. Lilly M, Godwin M. Treating prediabetes with metformin. Systematic review and meta-analysis. *Can Fam Physician* 2009;55:363-9.

Blown out of proportion

The corresponding letters of outrage by Dr Simpson and Ms Burger in the April 2009 issue^{1,2} prompted me to review the [February 2009] cover image in question. In truth, I had not paid much attention to it when the issue originally reached me.

On reflection, the image shows a naked, vulnerable adult woman, externally in good health, clutching what should be a vital source of nourishment, which is instead a source of pain and illness. I am reminded of the struggles my patients with celiac disease go through every day and believe perhaps this image helped me to understand their situation better. That's not a bad job for such a small piece of art—I'm sorry others didn't like it as much as I did.

I would certainly disagree with the assertion that the image seems to have been chosen out of "laziness" or a lack of thought.¹ On the contrary, when the image is seen in the context of its accompanying epigraph—"What is food to one, is to others bitter poison" (Lucretius, *On the Nature of Things* [99-55 BC])—it is clear to me the editors devoted a great deal of thought to what they were doing.

In contrast, this month's [April 2009] cover shows a bunch of molecules bouncing around, which could have been taken from a physiology textbook or a video game advertisement. It doesn't really inspire me to reflect in a meaningful way on the effects of diabetes or, in fact, on anything else. I note that *Canadian Family Physician* tends to select images of people more often than

The top 5 articles read on-line at cfp.ca last month

1. **Clinical Review:** Treating prediabetes with metformin. *Systematic review and meta-analysis* (April 2009)
2. **Rx Files:** Taking the stress out of acne management (March 2009)
3. **Practice:** Update on the Canadian Diabetes Association 2008 clinical practice guidelines (January 2009)
4. **Commentary:** Improving aboriginal health. *How can health care professionals contribute?* (April 2009)
5. **Debates:** Should family medicine residency be 3 years? Yes (April 2009)