

## Medication to prevent breast cancer — too much to swallow?

**TO THE EDITOR:** We read with interest the recent article by Harvey and colleagues,<sup>1</sup> which eloquently outlines the benefits and risks of selective oestrogen receptor modulators in the prevention of breast cancer in women at moderate-to-high risk.

Another oral medication that may prove to be of benefit in reducing the risk of breast cancer is the insulin sensitiser metformin, the most commonly prescribed oral therapy for type 2 diabetes. Metformin, which has been in use for over 50 years, is a safe and effective diabetes medication with a low adverse event profile.

Although the evidence of metformin's benefits in cancer prevention is observational and confined to patients with diabetes,<sup>2-4</sup> the magnitude of the effects (up to 50%–70% risk reduction, depending on the comparator) is promising. The data suggest that metformin may prove to be an effective agent in preventing and treating breast cancer, not only in obese patients with type 2 diabetes and metabolic syndrome, but also possibly in patients who do not have diabetes, although the data are currently not available.

Potential mechanisms of metformin's antineoplastic effects include improvement in insulin sensitivity, activation of AMP-activated protein kinase and reduction in insulinaemia.<sup>5</sup> Furthermore, the benefits of metformin in inducing weight loss in some patients may contribute, either directly or indirectly, via the pathways listed earlier.

In summary, the available data on metformin's potential antineoplastic effects are promising. The foundations have been laid for investigating metformin as an agent for preventing, and possibly treating, cancer. This body of evidence may provide additional support for the widespread use of metformin in patients with type 2 diabetes, including those treated with insulin.

**Jerry R Greenfield** Endocrinologist

**Ann I McCormack** Endocrinologist

St Vincent's Hospital, Sydney, NSW.

[j.greenfield@garvan.org.au](mailto:j.greenfield@garvan.org.au)

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