

LETTERS

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Metformin use as an adjunct to insulin treatment in selected patients with type 1 diabetes mellitus

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TO THE EDITOR: Metformin is a commonly prescribed oral hypoglycaemic agent used to treat type 2 diabetes mellitus. Its major effect is on hepatic glucose production and thereby fasting blood glucose level (f-BGL). Metformin does not commonly cause weight gain, and may be associated with significant weight loss.¹

Over the past year, we have prescribed metformin as adjunctive therapy for five patients with type 1 diabetes (T1DM). The patients were selected because of ongoing difficulty controlling f-BGL without hypoglycaemia. T1DM was diagnosed following hyperglycaemia and positive anti-GAD-antibody 56 U/L (normal <9) (patient 1) or ketoacidosis and undetectable C-peptide (patients 2–5). Relevant patient characteristics are shown in the Box. Four patients experienced mild hypoglycaemia as f-BGL was stabilised over 2–4 weeks. No severe hypoglycaemia occurred.

Adjunctive metformin treatment was associated with significantly reduced

daily insulin requirements (mean±SD, 0.8±0.1 vs 1.3±0.3 U/kg per day; $P=0.022$) and HbA_{1c} (7.4%±1.3% vs 8.4%±1.2%; $P=0.0085$).

Controlling f-BGL can be particularly difficult in T1DM. Fasting hyperglycaemia is due to increased hepatic glucose production, related to portal insulin deficiency and counter-regulatory hormones, including growth hormone and cortisol. Therapeutic options to improve f-BGL are limited. Large doses of bedtime intermediate or long-acting insulin increase the risk of hypoglycaemia. Insulin pump-therapy may control glucose levels, but is expensive, associated with weight gain, and is often not preferred by patients.

Obesity is associated with insulin resistance, and intensive insulin treatment is associated with weight gain. Hypoglycaemia can also lead to weight gain if episodes are over-treated. Thus, people with T1DM may become overweight and insulin resistant. Metformin may help to break the spiral of weight gain, hyperglycaemia, increased insulin requirements, and further weight gain.²

Two recent, small studies have examined metformin in T1DM. One study, in patients using insulin pumps, showed decreased daily insulin requirements, but no change in HbA_{1c}.³ These patients were initially receiving a mean dose of 0.72 U/kg per day, suggesting

that they were not significantly insulin resistant, unlike our patients. The other study included patients with a high insulin requirement (>1 U/kg per day) and found significant decreases in insulin requirement, f-BGL and HbA_{1c}, consistent with our findings.⁴

The patients should be carefully selected, as metformin is not routinely indicated for T1DM. The major concern is metabolic acidosis, and metformin is contraindicated where ketoacidosis is an ongoing concern, and in metabolic acidosis or catabolic states. Metformin should be ceased when sick-day management commences.

With these caveats, we believe that metformin can contribute towards

Corrections

Re: the 5 May 2003 supplement to the Journal, *Comprehensive care for people with schizophrenia living in the community* (*Med J Aust* 2003; 178: S41–S80). In some articles, authors have referred, in the text or reference list, to other articles in the same supplement. In a few instances, the page numbers of the cited articles have been omitted. These omissions have been corrected in the version of the supplement that appears on our website (www.mja.com.au). □

Re: “The SARS epidemic: lessons for Australia”, by Cameron PA, Rainer TH, De Villiers Smit P, in the 19 May 2003 issue of the Journal. The Box with the World Health Organization case definitions of “suspected” and “probable” SARS (severe acute respiratory syndrome) was omitted from the print version of this editorial (*Med J Aust* 2003; 178: 478–479), but was included with the rapid online publication on 21 April 2003 (<http://www.mja.com.au/public/rop/cam10220_fm.html>). The case definitions are updated regularly by the WHO and are available at <<http://www.who.int/csr/sars/casedefinition/en/>>. The WHO case definitions for SARS, as at 1 May 2003, are given in the Box on page 556 of this issue of the Journal. □

Patients' characteristics and HbA_{1c} pre and post-metformin treatment

Patient	Age (years)	Duration of type 1 diabetes (years)	Metformin dose (mg/d)	BMI (kg/m ²)	Daily insulin units		Fasting BGL (mmol/L)	HbA _{1c}
					(U)	(U/kg)		
1	22	2	1500	Pre 25.5	96	1.4	7.0–11	7.1%
				Post 25.0	41	0.6	5.0–6.5	5.8%
2 (PCOS)	28	12	1500	Pre 33.7	67	0.9	6.5–12	10.3%
				Post 32.5	64	0.85	4.5–7.8	9.3%
3	27	8	1500	Pre 30.6	140	1.6	6.8–9.5	7.6%
				Post 29.8	76	0.9	4.8–6.6	7.1%
4	31	14	1000	Pre 24.7	92	1.4	2.1–16.0	8.1%
				Post 24.1	61	0.95	4.5–9.3	7.5%
5	39	22	1000	Pre 23.7	90	1.3	1.9–14.2	8.7%
				Post 23.4	62	0.9	4.2–8.4	7.1%
Mean values ±SD	27	11	1300	Pre 27.6±4.3 Post 27.0±4.0	1.3±0.3 0.8±0.1		8.4±1.2% 7.4±1.3%	

BMI = body mass index. BGL = blood glucose level; normal range, 3.9–6.1 mmol/L. HbA_{1c} = glycosylated haemoglobin; normal range, 3.3%–5.7%. PCOS = polycystic ovarian syndrome.

improving glycaemic control in patients with T1DM.

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Competing interests: None identified.

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Medical rosters and the Trade Practices Act

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TO THE EDITOR: I concluded my recent article with a hope that the "recommendations of the Dawson Committee will provide much needed amendment to the Trade Practices Act".¹ In the article, I argued that medical rosters ran the risk of illegality as exclusionary provisions under the *Trade Practices Act 1974* (Cwlth) because of either a drafting deficiency in the Act or a policy non-appreciation of what should and what should not be banned under it. I advocated amending the Act in two crucial respects to bring our law into line with that of New Zealand and the United States.

The risk of illegality of medical rosters may be short lived. The Dawson Committee review of the Trade Practices Act has now recommended that it be amended in both these ways.²

In relation to exclusionary provisions, the Dawson Committee has recommended that:

8.1 The Act should be amended so that it is a defence in proceedings based upon the prohibition of an exclusionary provision to prove that the exclusionary provision did not have the purpose, effect or likely effect of substantially lessening competition.

8.2 The Act should also be amended to restrict the persons or classes of persons to which a prohibited exclu-

sionary provision relates, to a competitor or competitors, actual or potential, of one or more of the parties to the exclusionary provision.

The government response to these recommendations is.³

The Government agrees with these recommendations. Although much of the behaviour covered by the present prohibition may damage competition, there is a risk that the prohibition may also be capturing some behaviour that is not detrimental to competition. To ensure the prohibition only ever stops harmful behaviour, the Government will establish a competition defence, as outlined in Recommendation 8.1. In addition, the prohibition will be confined to those agreements that target competitors, actual or potential, of the parties to the agreement.

Assuming that these recommendations are enacted, medical rosters will clearly be legal, as they are not anticompetitive except in the most unusual circumstances. Sanity has at last prevailed.

- Pengilley W. Medical rosters and the Trade Practices Act. *Med J Aust* 2003; 178: 337-340.
- Review of the competition provisions of the Trade Practices Act (Daryl Dawson, AC KBE CB, Chairman). 31 January 2003. Available at: <http://www.tpareview.treasury.gov.au/content/report.asp> (accessed May 2003).
- Commonwealth government response to the review of the competition provisions of the Trade Practices Act 1974. Available at: <http://www.treasurer.gov.au/tsr/content/publications/TPAResponse.asp> (accessed May 2003). □

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