

Robust studies needed on effects of mixing insulins



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Although multiple injection therapy is widely accepted, many patients – even those who seem to manage their diabetes effortlessly – long for fewer or even no injections (look at the flurry of interest that occurs whenever a new route of insulin delivery is proposed).

There is little doubt that the newer insulin analogues have some advantages over the older formulations, despite the relatively minor differences observed in randomised controlled studies (Ratner et al, 2000; Fonseca et al, 2004). However, the absence of any information about the impact of mixing rapid-acting analogues with insulin glargine on insulin pharmacodynamics has meant that most clinicians have avoided this.

The study by Fiallo-Scharer et al (see right) suggests, however, that using such a mixture does not have an adverse effect on glycaemic control. This does not mean that there is no effect, and the study can hardly

be described as good science. For one thing, there was a substantial potential for observer bias. Nevertheless, it is a good example of how enthusiastic and innovative clinicians push back the boundaries for the sake of their patients.

Mixing insulin glargine with a rapid-acting insulin analogue could be very advantageous for the 'needle-phobic', injection-loathing person with diabetes, since omission of just one injection will be welcome. However, it takes more than two swallows to make a summer (the other 'swallow' being Kaplan et al, 2004), and before this practice becomes widespread we must be sure that the dynamics of either insulin are not adversely affected. We need some simple but robust studies – isn't this the sort of thing pharmaceutical companies are supposed to do?

Fonseca V, Bell DS, Berger S et al (2004) A comparison of bedtime insulin glargine with bedtime neutral protamine hagedorn insulin in patients with type 2 diabetes. *American Journal of Medical Sciences* **328**(5): 274–80

Kaplan W, Rodriguez LM, Smith OE et al (2004) Effects of mixing glargine and short-acting insulin analogs on glucose control. *Diabetes Care* **27**(11): 2739–40

Ratner RE, Hirsch IB, Neifing JL et al (2000) Less hypoglycemia with insulin glargine in intensive insulin therapy for type 1 diabetes. *Diabetes Care* **23**(5): 639–43

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Mixing insulins yields no significant differences relative to separate dosing

Readability	✓✓✓✓
Applicability to practice	✓✓
WOW! factor	✓✓✓✓

1 The authors sought to test for negative effects of administering a long-acting insulin analogue (insulin glargine) with a rapid-acting insulin analogue (insulin aspart or insulin lispro) mixed in a syringe relative to separate administration of the insulins.

2 Data were obtained retrospectively – from a review of the medical records of children with type 1 diabetes – over a 1-year period that was centred on the commencement of insulin mixing for 55 individuals; 55 children who only injected insulins separately served as controls.

3 No significant differences between the groups were found in HbA_{1c}, hypoglycaemic events (both severe and non-severe) or diabetic ketoacidosis events.

4 Another measure of glycaemic control was the percentage of values derived from self-monitoring of blood glucose that fell below, within and above a defined target range (3.9–10 mmol/l); no significant differences were found for this either.

5 An acknowledged weakness of the study is that timed insulin and glucose levels were not available on the records; the authors state that further studies are required to chart plasma insulin levels of mixed insulins and compare this with levels of separately dosed insulins.

Fiallo-Scharer R, Horner B, McFann K et al (2006) Mixing rapid-acting insulin analogues with insulin glargine in children with type 1 diabetes mellitus. *Journal of Pediatrics* **148**(4): 481–4

DIABETES CARE



Adolescents with type 1 diabetes get relatively more calories from fat

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 This investigation's objective was to compare dietary components of adolescents with and without type 1 diabetes, with regard to recommendations.

2 One hundred and thirty-two adolescents with type 1 diabetes were compared with 131 age- and sex-matched participants without the condition.

3 The investigators used 24-hour recall interviews to determine dietary intake; the goal was for each participant to have three such interviews with 1-month gaps in between.

4 Means were calculated for the percentage of calories from carbohydrate, fat and protein, as well as the amounts of cholesterol, fibre, sugar and different fat types.

5 The adolescents with diabetes consumed significantly fewer calories from carbohydrate but significantly more calories from fat than those without the condition.

6 It was also found that adolescents with type 1 diabetes generally exceeded recommended levels of fat intake; males were noted to have an especially high intake of saturated fats.

Helgeson VS, Viccaro L, Becker D et al (2006) Diet of adolescents with and without diabetes: Trading candy for potato chips? *Diabetes Care* **29**(5): 982–7