DIABETES CARE

Insulin restriction in diabetes increases mortality risk

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

1 The study aim was to examine the effect of insulin restriction on morbidity and mortality in women with type 1 diabetes.

2 A follow-up assessment was conducted on 234 women with type 1 diabetes who were originally studied 11 years previously.

3 At follow-up the women's average age was 45 years and average diabetes duration was 28 years. Information about complications was gathered by self-report.

4 Nearly one-third of women (71) were insulin restrictors at baseline; 26 of these died before follow up.

5 Multivariate Cox regression analysis determined that insulin restriction at baseline increased the relative risk of mortality by 3.2 during the study; women who restricted their insulin were younger at death (44 years *vs* 58 years, $P<0.01$).

6 Women who restricted their insulin obtained higher scores on baseline measures of diabetes distress, fear of hypoglycaemia, general psychological symptoms and eating disorder symptoms such as bulimia, and were more likely to develop nephropathy and foot problems at follow up.

7 Insulin restriction in women with type 1 diabetes increases the risk of diabetes complications and mortality. As this increased risk was associated with eating disorder symptoms, the authors propose better screening for this vulnerable group.

Goebel-Fabbri AE, Fikkan J, Franko DL, Pearson K, Anderson BJ, Weinger K (2008) Insulin restriction and associated morbidity and mortality in women with type 1 diabetes. *Diabetes Care* **31**: 415–19

Women who restrict insulin increase mortality risk

Daniel Flanagan, Consultant Physician, Derriford Hospital, Plymouth

Women with type 1 diabetes who reduce or withhold their insulin dose are at three-fold greater risk of early death and a greater risk of diabetes-related complications compared with a group of women who did not report insulin restriction. The paper by Goebel-Fabri and colleagues (summarised alongside), a group of psychologists from the Joslin Diabetes Center, reports the follow up data on the original study performed in 1990 (Polonsky et al, 1994). The number of participants is relatively small, with 234 women (60% of the original cohort) followed up at 11 years. The results are, however, striking. The mean age of death in the insulin restriction group was 45 years, compared with 58 in the group reporting appropriate insulin use. This rather bleak fact is coupled with the surprisingly high incidence of insulin restriction in their original cohort. Thirty-one per cent of women reported deliberate omission of insulin doses, with 8.8% reporting frequent omission. This is in a group of women aged 13–60 years: representative of any group of women attending a specialist diabetes clinic.

So, this problem is common in our clinics and has severe consequences. Having identified the problem, the paper is surprisingly unhelpful in suggesting a treatment strategy. The tools used by the study group would not translate easily to clinical care, but they do suggest the simple screening question – Do you take less insulin than you should?

The study is restricted to women – as is almost all of the literature in this area – and, interestingly, all the authors are women. The paper presents insulin restriction as a women's health issue. It seems difficult to believe that this problem does not also occur in men, particularly with the current focus on the importance of weight management.

As the results show such a dramatic difference in survival, we need to think about how to identify the problem in our own clinics and provide focused care for what appears to be a major health issue.

Polonsky WH, Anderson BJ, Lohrer PA et al (1994) Insulin omission in women with IDDM. *Diabetes Care* **17**: 1178–85

DIABETOLOGIA

Mean blood glucose is a better predictor then HbA_{1c}

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

1 The authors undertook this study in order to ascertain whether mean blood glucose (MBG) is a better predictor of macrovascular complication risk than HbA_{1c} and to assess the relationship between MBG, HbA_{1c} and glucose variability with regards CVD risk.

2 Cox regression analysis was carried out on pre- and postprandial blood glucose profile data recorded quarterly during the Diabetes Control and Complications Trial.

3 The analysed data indicated that HbA_{1c} was not predictive of a cardiovascular event ($P=0.858$), however, MBG was ($P=0.019$).

4 After adjustment for HbA_{1c} and glucose variability, MBG was still predicitve of a cardiovascular event. A 1mmol/l increase in MBG was associated with an 11% increase in CV risk.

5 The authors conclude MBG should be used to assess CV risk associated with hyperglycaemia rather than HbA_{1c}.

Kilpatrick ES, Rigby AS, Atkin SL (2008) Mean blood glucose compared with HbA(1c) in the prediction of cardiovascular disease in patients with type 1 diabetes. *Diabetologia* **51**: 365–71

DIABETOLOGIA

Islet cell transplant offers good control

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

1 The study observed patients with type 1 diabetes who had undergone either simultaneous islet–kidney (SIK) transplantation (n=13) or simultaneous pancreas–kidney (SPK) transplantation (n=25) and who were followed up over an average of 41 months.

2 HbA_{1c} values did not differ between the two groups before or after transplantation and showed good control.

3 One year after transplantation, 96% of the SPK group were insulin dependent compared with 31% of the SIK group. However, SPK transplantation is a more invasive procedure, and 40% of these patients had to undergo relaparotomy (*vs* 0% of SIK patients) because of complications.

4 A future aim is to use a less-invasive procedure to achieve glucose control.

Gerber PA, Pavlicek V, Demartines N et al (2008) Simultaneous islet–kidney *vs* pancreas–kidney transplantation in type 1 diabetes mellitus: a 5-year, single-centre follow up. *Diabetologia* **51**: 110–19

DIABETES CARE

Trial participation can improve HbA_{1c}

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

1 The study examined the effect of trial participation on glucose control in people with diabetes.

2 Eligible trials had screened patients for study inclusion on a single visit without altering treatment.

3 Data from three trials involving 429 patients with type 1 diabetes and three trials involving 611 patients with type 2 diabetes were combined to determine change in HbA_{1c} during the interval between first screening and treatment randomisation.

4 The average change in HbA_{1c} was -0.13% for type 1 diabetes over a median of 28 days and -0.16% for type 2 diabetes over a median of 14 days; with a longer interval of ≥28 days, the average change in HbA_{1c} was -0.24% for type 1 diabetes and -0.23% for type 2 diabetes.

5 This reduction was proportional to initial HbA_{1c}, with the most improvement seen in those with the poorest control at first screening.

6 Future clinical trials should record HbA_{1c} at first screening as well as at treatment onset to determine a useful baseline level for study comparison.

Gale EAM, Beattie SD, Hu J et al (2007) Recruitment to a clinical trial improves glycaemic control in patients with diabetes. *Diabetes Care* **30**: 2989–92

DIABETIC MEDICINE

CSII is a safe and effective therapy

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

1 The authors determined the long-term effects of continuous subcutaneous insulin infusion (CSII) *vs* a multiple daily injection (MDI) regimen in young people with type 1 diabetes.

2 Parameters such as HbA_{1c}, insulin dose, rates of hypoglycaemia and diabetic ketoacidosis (DKA), and level of care were measured over 3 years after initiation into either CSII or MDI regimens in a multicentre, matched-pair (434 pairs) cohort analysis.

3 After 1 year, HbA_{1c} was lower in the CSII group, but this rose to equal values in the MDI group after 3 years; insulin requirement and rate of DKA remained lower in the CSII group.

4 CSII is safe and effective with fewer diabetic complications and less insulin requirement than MDI.

Jakisch BI, Wagner VM, Heidtmann B et al (2008) Comparison of continuous subcutaneous insulin infusion and multiple daily injections in paediatric type 1 diabetes. *Diabetic Medicine* **25**: 80–5