

## ENDOCRINE PRACTICE



### Safe use of insulin pump therapy in a hospital setting

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

**1** This retrospective review analysed data on inpatient insulin pump use, and examined glycaemic control, safety and the adherence of staff to hospital procedures.

**2** Participants were inpatients who had been admitted to a teaching hospital in Phoenix, Arizona, between 1 November 2005 and 8 February 2008, with a mean age of 55 years and a mean diabetes duration of 32 years; charts and bedside glucose data were retrospectively reviewed.

**3** There were 50 hospitalisations involving 35 participants who had been receiving outpatient insulin pump therapy, during the study period.

**4** A total of 62% (31) of those hospitalised were considered suitable for continued insulin pump therapy throughout their stay.

**5** Adherence to hospital procedure for the 31 hospitalisations was reported as follows: the presence of the insulin pump was documented on admission in 80%; the glucose value was documented on admission for 100%; and evidence of signed patient consent was available for 77%.

**6** Bedside glucose levels were similar in those who had continued insulin pump therapy compared with those who had not ( $P=0.11$ ), although the incidence of hypoglycaemic event was reduced in the insulin pump users ( $P<0.01$ ).

**7** The authors concluded that insulin therapy is safe for selected inpatients, and the adherence to hospital procedure was high, although areas for improvement were identified.

Bailon RM, Partlow BJ, Miller-Cage V et al (2009) Continuous subcutaneous insulin infusion (insulin pump) therapy can be safely used in the hospital in select patients. *Endocr Pract* **15**: 24–9

### Insulin pumps in hospital: A problem and perhaps a solution?



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**I**nsulin pump therapy continues to increase in popularity. As a result, more clinics are establishing insulin pump services to support the use of these devices. The focus, understandably, is on the day-to-day use of insulin pumps during healthy living. Increasingly, diabetes services are provided in smaller community clinics, outside of the main hospital. There is no obvious link between a service that runs in the community and what then happens if an insulin pump user is admitted to hospital.

It is not difficult to imagine a scenario where a person with diabetes is admitted to hospital with a problem unrelated to diabetes. They are likely to know far more about the insulin pump and how to manage it than the medical staff looking after them. It may be very difficult for an insulin pump user to convince hospital staff that they know what they are doing and should be allowed to get on with managing their own glucose control. If access to specialist diabetes

advice is not available, the response may well be to withdraw the insulin pump and possibly switch to a less satisfactory form of insulin delivery. At best, this is intensely frustrating for the patient. At worst, the result may be a serious adverse event such as hypoglycaemia. In health economic terms this is inefficient with increased time in hospital and increased costs.

Those of us who run outpatient diabetes services need to have agreed plans to allow people to self-administer insulin therapy in hospital, including specific guidance for the use of insulin pump therapy. If the insulin pump user is unable to do this then there needs to be an agreed plan for how to deal with the situation. If one of these does not exist, then it may be a very junior doctor who makes the decision about what to do.

All of the above is viewed from the perspective that insulin pump therapy is a problem that needs to be dealt with. The next stage will be to identify specific groups of inpatients where perhaps short-term supervised insulin pump therapy may improve care for the time that they are in hospital.

## DIABETIC MEDICINE



### Men with type 1 diabetes have low bone density

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

**1** The authors of this study aimed to measure the prevalence and biochemical and hormonal determinants of osteopenia and osteoporosis in people with type 1 diabetes.

**2** Participants: 102 people with type 1 diabetes (52 female, 50 male) aged 20–71 years.

**3** Cross-sectional assessment of the biochemical and hormonal markers of bone metabolism and bone mineral density (BMD) measurement at forearm, hip and spine was

carried out using dual energy X-ray absorptiometry.

**4** Age- and gender-matched population-based control participants provided BMD data.

**5** At the spine of male participants with type 1 diabetes, osteopenia and osteoporosis were more common than in the control group ( $P=0.030$ ).

**6** After adjusting for age and BMI, BMD, T- and Z-scores were lower in men with type 1 diabetes compared with the control group at the hip, femoral neck and spine ( $P\leq 0.048$ ).

**7** BMD, T- and Z-scores were similar for women with type 1 diabetes and women in the control group.

**8** Adult men with type 1 diabetes were found to have a lower bone density than age-matched control participants.

Hamilton EJ, Rakic V, Davis WA et al (2009) Prevalence and predictors of osteopenia and osteoporosis in adults with type 1 diabetes. *Diabet Med* **26**: 45–52

**“Once-daily dosing of insulin detemir is the most suitable routine when initiating insulin detemir as part of a basal-bolus regimen, although some people may benefit from a twice-daily regimen.”**

## DIABETES CARE

### Once-daily dosing is the most suitable regimen for insulin detemir

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

- 1 Once-daily dosing of insulin detemir was compared with twice-daily dosing in this open-label, 7-month study.
- 2 A total of 520 participants with type 1 diabetes duration >1 year and an HbA<sub>1c</sub> levels of 7.5–10% were included in the study.
- 3 Participants were randomised to receive insulin detemir either once-daily at bedtime, or twice-daily, with half of the dose before breakfast and half at bedtime. Both groups also administered insulin aspart at mealtimes.
- 4 Insulin doses were titrated for 1 month, followed by a 3-month observation period. After which, participants could switch from one insulin regimen to the other, and were observed for a further 3 months.
- 5 The primary endpoint was the HbA<sub>1c</sub> level at 4 months, with non-inferiority defined as a difference <0.4% between groups.
- 6 At 4 months HbA<sub>1c</sub> was 8.1 ± 0.9% with once-daily dosing, and 8.0 ± 1.0% with twice daily dosing (adjusted between-group difference of 0.12%; 95% confidence interval -0.01 to 0.25%), showing non-inferiority for once-daily dosing.
- 7 Both groups experienced a similar improvement in HbA<sub>1c</sub> (-0.4 ± 0.8 vs. -0.5 ± 0.8%; P=0.09).
- 8 Once-daily dosing of insulin detemir is the most suitable routine when initiating insulin detemir as part of a basal-bolus regimen, although some people may benefit from a twice-daily regimen.

Le Floch JP, Lévy M, Mosnier-Pudar H et al (2009) Comparison of once- versus twice-daily administration of insulin detemir, used with mealtime insulin aspart, in basal-bolus therapy for type 1 diabetes: assessment of detemir administration in a progressive treat-to-target trial (ADAPT). *Diabetes Care* **32**: 32–7

## THE JOURNAL OF UROLOGY

### High prevalence of urinary incontinence in women with T1D

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

- 1 The prevalence, level of bother and effect on daily activities of urinary incontinence in women with type 1 diabetes was compared with a subgroup of women with normoglycaemia.
- 2 In 2004, a self-administered questionnaire on urinary incontinence was filled out by 550 women with type 1 diabetes.

- 3 In total, 65% of women reported any urinary incontinence (17% reported weekly incontinence).
- 4 Around 40% of the women reporting urinary incontinence were greatly bothered by it and 9% believed it affected their day-to-day activities.
- 5 Women with type 1 diabetes were twice as likely to experience weekly urge incontinence compared with women in the general population (prevalence: 8.8% vs. 4.5%; P=0.01).
- 6 The results of this study highlight the importance of screening for urinary incontinence, and its effect on day-to-day activities in women with type 1 diabetes.

Sarma AV, Kanaya AM, Nyberg LM et al (2009) Urinary incontinence among women with type 1 diabetes – how common is it? *J Urol* **181**: 1224–30

## THE AMERICAN JOURNAL OF CLINICAL NUTRITION

### High fat diet results in higher HbA<sub>1c</sub>, independent of exercise or BMI

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

- 1 The authors of this study aimed to assess the association of diet composition with HbA<sub>1c</sub> in people with type 1 diabetes.

- 2 Complete dietary data from 5 years of follow-up was analysed from 532 participants of the Diabetes Control and Complications Trial.
- 3 Results were adjusted for age, sex, exercise, triglyceride concentration and BMI.
- 4 Higher fat intake, lower carbohydrate intake and higher insulin dose were associated with higher HbA<sub>1c</sub> levels, independent of exercise and BMI.

Delahanty LM, Nathan DM, Lachin JM et al (2009) Association of diet with glycated hemoglobin during intensive treatment of type 1 diabetes in the Diabetes Control and Complications Trial. *Am J Clin Nutr* **89**: 518–24

## DIABETES CARE

### IQ lower in people with type 1 diabetes than controls

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- 1 A total of 160 people with type 1 diabetes and 75 people in a control group took part in this study.
- 2 The Wechsler Abbreviated Scale of General Intelligence, magnetic resonance spectroscopy and imaging

- and metabolic control data were measured from diagnosis.
- 3 No significant difference in IQ was found between the groups 12 years ago (at onset of disease for those with type 1 diabetes).
  - 4 After 12 years, however, participants with type 1 diabetes had lower verbal and full scale IQs than those in the control group (P<0.05).
  - 5 The findings of this study suggest that diabetes affects several neuropathological processes.

Northam EA, Rankins D, Lin A et al (2009) Central nervous system function in youth with type 1 diabetes 12 years after disease onset. *Diabetes Care* **32**: 445–50