

Management of type 1 diabetes

DIABETIC MEDICINE

Risk of severe hypoglycaemia doubles in elderly with T1D

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

1 Subjects with T1D ($n=64609$) treated by 350 specialist diabetes centres in Germany were selected from the large, multicentre DPV-Wiss database, and analysed by age group (≤ 20 , 21–40, 41–60, 61–80 or >80 years).

2 The analysis focused on “elderly” (60–80 years; $n=3610$) and “older” patients (>80 years; $n=377$), and compared diabetes duration, the risk of severe hypoglycaemia and micro- and macrovascular complications, with younger people (≤ 60 years).

3 The differences found between elderly and young people were all significant ($P<0.05$). The elderly group had almost double the risk of severe hypoglycaemia compared with younger individuals (40.1 versus 24.3 patient-years), and the risk of severe hypoglycaemia increased continuously with age from ≤ 20 to ≤ 80 years.

4 Elderly individuals had a higher percentage of micro- and macrovascular complications (microalbuminuria, diabetic retinopathy, myocardial infarction, stroke and hypotension) and a higher BMI (26.6 versus 22.2 kg/m^2) compared with younger participants.

5 The authors concluded that elderly people in specialised diabetes centres require individualised treatment that takes into account increased risk of hypoglycaemia and complications.

Schütt M, Fach EM, Seufert J et al (2012) Multiple complications and frequent severe hypoglycaemia in elderly patients with type 1 diabetes. *Diabet Med* **29**: e176–9

It's time to focus care on the “elderly” T1D population



Daniel Flanagan, Consultant Physician, Derriford Hospital, Plymouth

The short report by Schütt and colleagues (2012; summarised alongside) provides a rather tantalising glimpse of the problems associated with T1D in the “elderly” population.

Clinicians are well aware that results from important studies

such as the Diabetes Control and Complications Trial (DCCT, 1993) have shown us that good glycaemic control prevents the long-term micro- and macrovascular complications of T1D. However, the DCCT and indeed the majority of subsequent papers focus on a relatively narrow age-range of people (the mean age in the DCCT was 27 years). Old age is often an exclusion criteria for study entry.

Shortly after the publication of the DCCT paper, the American Diabetes Association (ADA) released a position statement emphasising the importance of intensive management of T1D to improve glycaemic control. It is worthwhile to remember that the intensive group in this study had a three-fold greater risk of hypoglycaemia than the control group. The ADA commented that in some cases tight glucose control might need to be sacrificed in order to reduce the risk of hypoglycaemia.

The DCCT study authors concluded that, despite the narrow age-range of the study population, “there

is no reason to believe that the results do not apply to all persons with insulin-dependent diabetes mellitus.” This short report by Schütt and colleagues provides powerful evidence that the conclusions from the DCCT cannot be applied equally across all ages.

Tight glucose control is always a two-edged sword and we need to balance the short-term risks of hypoglycaemia against the long-term gain of reducing the risk of complications. Schütt et al have shown

us in their study that the risk of hypoglycaemia is significantly higher in people over the age of 60 years, a group in which the long-term benefits of good glucose control will be less and the implications of hypoglycaemia may be more serious. Despite this, there is no suggestion in the study data that any concession has been made to the shift in risk/benefit. HbA_{1c} was, if anything, lower in the “older” study group.

In conclusion, the management of T1D in the “elderly” is commonly complicated by frailty and other health issues. This often makes treatment decisions more

complex. At a time when diabetes services are under great pressure, there is a need for diabetes specialists to specifically focus care on the older population with T1D.

“Schütt et al have shown us that the risk of hypoglycaemia is significantly higher in people over the age of 60 years, a group in which the long-term benefits of good glucose control will be less and the implications of hypoglycaemia may be more serious.”

The Diabetes Control and Complications Trial Research Group (1993) The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* **329**: 977–86

“The median increase in total insulin requirement was statistically higher in twin pregnancies compared with singleton pregnancies.”

DIABETES CARE

Insulin requirements in twin and singleton pregnancies

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

1 The authors set out to compare insulin requirements in pregnant women with T1D during twin and singleton pregnancies.

2 Insulin requirements, HbA_{1c} and BP were compared between pregnant women with T1D who had twin ($n=15$) or singleton ($n=108$) pregnancies at 8, 14, 21, 27 and 33 weeks' gestation. Women recorded their self-monitored plasma glucose (SMPG) values and were asked to self-adjust between-clinic insulin doses to maintain optimal pre- and postprandial and post-bedtime SMPG glucose values.

3 In women with twin pregnancies, from 8 to 14 weeks' gestation there was a small decrease in weekly insulin requirement, and from 14 to 27 weeks' gestation, weekly insulin requirement doubled compared with women with singleton pregnancies ($P=0.008$).

4 The median increase in total insulin requirement was statistically higher in twin pregnancies compared with singleton pregnancies (103% versus 71%; $P=0.07$).

5 The authors concluded that the results from the study could be helpful when educating pregnant women with T1D expecting twins about the possible changes in insulin requirement throughout pregnancy.

Callesen NF, Ringholm L, Stage E et al (2012) Insulin requirements in type 1 diabetic pregnancy: do twin pregnant women require twice as much insulin as singleton pregnant women? *Diabetes Care* **35**: 1246–8

DIABETES CARE

Patient-led versus physician-driven CGM in T1D

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

1 People with poorly controlled T1D ($n=197$) with an HbA_{1c} ≥ 64 mmol/mol (8%) were randomly assigned to patient-led or physician-prescribed CGM or self-monitored blood glucose (SMBG). Between-group glucose outcomes and quality

of life were measured at 1 year.

2 HbA_{1c} and Patient SF-6 Physical Health Score improved significantly in both CGM groups compared with controls ($P<0.0001$ and $P=0.004$, respectively). Sensor use was 34% lower in the physician-driven CGM group compared with the patient-led CGM and control group.

3 The authors concluded that physician-driven CGM yielded comparable glucose outcomes to patient-led CGM but used fewer sensors.

Riveline JP, Schaepelynck P, Chaillous L et al (2012) Assessment of patient-led or physician-driven continuous glucose monitoring in patients with poorly controlled type 1 diabetes using basal-bolus insulin regimens: a 1-year multicenter study. *Diabetes Care* **35**: 965–71

DIABETOLOGIA

MODY: New clinical prediction models

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

1 The authors set out to develop two clinical prediction models to identify people likely to benefit from genetic testing for maturity onset diabetes of the young (MODY).

2 Two models were developed using logistic regression data

from people with MODY, T1D or T2D ($n=1191$). Sensitivity and specificity cut-offs were determined from plotted ROC curves.

3 Age at diagnosis was the strongest predictor of MODY. Compared with standard criteria, the models improved the sensitivity (91% versus 72%) and specificity (94% versus 91%) of MODY diagnosis.

4 The authors concluded that the models are a useful tool for rationalising high-cost genetic tests for MODY.

Shields BM, McDonald TJ, Ellard S et al (2012) The development and validation of a clinical prediction model to determine the probability of MODY. *Diabetologia* **55**: 1265–72

DIABETES TECHNOLOGY AND THERAPEUTICS

Earlier CSII initiation does not improve glycaemic control

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

1 The authors aimed to study the effect of continuous subcutaneous insulin infusion (CSII) initiation on long-term glycaemic control in T1D.

2 People with T1D were selected from a tertiary centre ($n=488$) – all had been on CSII therapy for at least 1 year.

3 Data were collected on mean HbA_{1c} values, rates of severe hypoglycaemia and diabetic ketoacidosis, and compared between people who had started CSII within 1 year of diagnosis ($n=93$) or later ($n=395$).

4 The timing of CSII initiation had no significant effect on long-term glycaemic control; this was illustrated by no significant between-group differences in study end points.

5 The authors concluded that diabetes care teams should individualise the timing of CSII initiation.

Shalitin S, Lahav-Ritte T, Leberthal Y et al (2012) Does the timing of insulin pump therapy initiation after type 1 diabetes onset have an impact on glycemic control? *Diabetes Technol Ther* **14**: 389–97