Management of type 1 diabetes

Driving and hypoglycaemia: New evidence

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The 'headline' finding of the paper summarised to the right is that a person with type 2 diabetes starting insulin is less likely to suffer hypoglycaemia than an individual with type 1 diabetes. This may seem a rather obvious statement to anyone working in this field, however, prior to this paper, there was surprisingly little documented evidence.

The risk and fear of hypoglycaemia remains very much at the top of the hierarchy of concerns for people with diabetes. Therefore, it is worth reflecting on what the information presented in this study actually means for the person with type 2 diabetes. For anyone involved in the modern management of people with diabetes, it is an absolute priority to educate individuals and provide the right technical support to reduce their risk of severe hypoglycaemic events as far as possible.

Driving is a fundamental right for the vast majority of adults; at the time of writing, the DVLA advice is rather non-specific on the topic of hypoglycaemia and driving. It simply tells us that you can continue to drive if you can recognise the warning symptoms of hypoglycaemia. But how does this help us when advising a 17-year-old moped rider recently diagnosed with type 1 diabetes? And how would this advice differ from that given to a 65-year-old grandmother with type 2 diabetes switching to insulin from a sulphonylurea and metformin? The hypoglycaemia risk in the first case is relatively high while in the second it should be no different to being on oral medications. An important finding of the UK Hypoglycaemia Study Group is that the risk of hypoglycaemia while driving depends on the type of diabetes and the approach to insulin use.

It is interesting to note that this study was sponsored by the Department of Transport and that five of the six research groups involved have representatives on the advisory panel to the Secretary of State for Transport. There is, however, no mention of how these findings are going to be translated into clinical advice relating to driving.

DIABETIC MEDICINE

Avoiding hypos and restoring hypo awareness in T1D

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

1 This was a small pilot study of 21 individuals with type 1 diabetes naive to MDI of insulin who were followed for 24 weeks to evaluate the impact of management changes designed to decrease the frequency of severe hypoglycaemic events.

2 All participants received structured re-education regarding avoidance of hypoglycaemia and maintenance of blood glucose control. Seven individuals were randomised to each of the following groups: education alone (current insulin regimen maintained, lowered blood glucose targets); switch to analogue regimen (preprandial insulin lispro and pre-evening meal insulin glargine); switch to CSII of insulin lispro.

3 For each group, the calculated rate of severe hypoglycaemia episodes per year was: 0.6 (analogue), 0.9 (CSII) and 3.7 (education alone).

4 After 24 weeks, no group showed significant improvement in hypoglycaemic awareness. Only the education alone group showed a significant decrease in the proportion of time spent with a blood glucose level <2.5 mmol/l (9.0 ±4.5 % at baseline versus 0.9±0.9 % at 24 weeks; P=0.03).

5 Only the group who switched to an analogue regimen showed significant improvement in HbA_{1c} from 0 to 24 weeks (8.6±1.1 % versus 7.6±0.8 %; P=0.04).

6 Potentially, hypoglycaemic awareness can be restored and severe hypoglycaemia avoided by switching to an analogue or CSII regimen.

Thomas RM, Aldibbiat A, Griffin W et al (2007) A randomized pilot study in Type 1 diabetes complicated by severe hypoglycaemia, comparing rigorous hypoglycaemia avoidance with insulin analogue therapy, CSII or education alone. *Diabetic Medicine* **24**: 778–83

DIABETOLOGIA

Mild hypos with insulin less frequent in T2D than T1D

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

1 The hypothesis tested in this observational study was that the type of diabetes and the duration of the condition both influence the risk of hypoglycaemia.

2 Involved were 383 people with type 1 or type 2 diabetes from six UK secondary care diabetes centres who were followed for 9–12 months.

3 Those recruited with type 2 diabetes (n=274) fell into one of the following categories: on SU therapy; using insulin therapy <2 years; or using insulin therapy >5 years. Study participants with type 1 diabetes had been diagnosed with the condition for either <5 years or >15 years.

4 The mean rate of mild hypoglycaemic events in people with type 2 diabetes new to using insulin (<2 years) was significantly lower than that for those with type 1 diabetes new to insulin therapy (<5 years; 4 versus 36 episodes per subject year; P=0.001).

5 In those with type 2 diabetes treated with an SU or who had been using insulin for >2 years, no difference was seen in the occurrence of severe hypoglycaemia (7 % versus 7 %; 95 % CI: -7 to 9 %) or mild symptomatic hypoglycaemia (39 % versus 51 %; 95 % CI: -13 % to 10 %).

6 The authors conclude that the difference in risk of hypoglycaemia between people with type 1 and type 2 diabetes is clinically relevant among those who have recently started an insulin regimen.

UK Hypoglycaemia Study Group (2007) Risk of hypoglycaemia in types 1 and 2 diabetes: effects of treatment modalities and their duration. *Diabetologia* **50**: 1140–7

NUTRITION, METABOLISM & CARDIOVASCULAR DISEASES

Young people with T1D spend less time exercising than peers

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

1 This study investigated whether or not young people with type 1 diabetes spent as much time participating in sporting activities as healthy controls.

2 In total, 138 young people with type 1 diabetes were involved; mean age was 13.6±4.1 years; mean duration of diabetes 6.1±3.8 years; 49 % male. There were also 269 healthy controls.

3 Weekly time spent in moderate or vigorous physical activity was significantly lower in young people with type 1 diabetes than controls (2.8 versus 3.6 days per week, respectively; P=0.0001).

4 The proportion of individuals with an HbA_{1c} <8.5 % was significantly lower among young people who did not take part in sports compared with those who did (15.4 % versus 30.1 %; P=0.045).

5 The authors advise that further efforts need to be made to help motivate young people with type 1 diabetes to engage in physical activities.

Valerio G, Spagnuolo MI, Lombardi F et al (2007) Physical activity and sports participation in children and adolescents with type 1 diabetes mellitus. *Nutrition, Metabolism & Cardiovascular Diseases* **17**: 376–82

DIABETES CARE

Four-fold increase in incidence of stroke in women with T1D

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

1 This trial set out to qualify the relationship between the incidence of stroke subtypes and type 1 and type 2 diabetes in women.

2 Data collection took place between 1976, when participants were aged 30–55 years, and 2002. In total, 116 316 nurses participating in the Nurses Health Study were involved.

3 Data were collected for 2.87 million person-years of follow up. In this period, 3 463 strokes were recorded.

4 Compared with women without the condition, relative risk of stroke was 4.7 (95 % CI: 3.3–6.6) in women with type 1 diabetes and 1.8 (95 % CI: 1.7–2.0) in women with type 2 diabetes

5 For ischaemic stroke, relative risk in type 1 diabetes was elevated to 6.3 (95 % CI: 4.0–9.8) times that of women without diabetes.

6 Type 1 diabetes was significantly associated with an elevated risk of haemorrhagic stroke (RR: 3.8; 95 % CI: 1.2–11.8).

Janghorbani M, Hu FB, Willett WC et al (2007) Prospective study of type 1 and type 2 diabetes and risk of stroke subtypes: the Nurses' Health Study. *Diabetes Care* **30**: 1730–5

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Highest rates of T1D in non-Hispanic white US youths

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

1 This study collected data on the incidence of diabetes in US individuals under the age of 20 years and analysed them according to ethnic background.

2 In total, 2435 young people with newly diagnosed or nonsecondary diabetes were involved.

3 Incidence rates of type 1 diabetes per 100 000 person-years were calculated for each of the following age groups. Aged 0–4 years: 14.3; 5–9 years: 22.1; 10–14 years: 25.9; 15–19 years: 13.1.

4 Among those <4 years of age, incidence per 100 000 person-years was highest among non-Hispanic white children (18.6) followed by African–American (9.7), Hispanic (9.1), Asian/Pacific Islander (4.1) and American Indian (4.1).

5 Incidence per 100 000 person-years in the group aged 5–9 years was 28.1 in non-Hispanic white children; 16.2 in African–Americans; 15.7 in those of Hispanic origin; 8.0 among Asians/Pacific Islanders; and 5.5 in American Indians.

6 In the group aged 10–14 years, incidence per 100 000 person-years was as follows: 32.9 in non-Hispanic whites; 19.2 in African–Americans; 17.6 in Hispanic young people; 8.3 in Asians/Pacific Islanders; and 7.1 in American Indians.

7 In the 15–19 years age group, again non-Hispanic whites showed the highest incidence per 100000 person-years of type 1 diabetes (15.1), followed by African Americans (11.1), Hispanics (12.1), Asians/Pacific Islanders (6.8) and American Indians (4.8).

Writing Group for the SEARCH for Diabetes in Youth Study Group (2007) Incidence of diabetes in youth in the United States. *Journal of the Amercian Medical Association* **297**: 2716–24

ARCHIVES OF GENERAL PSYCHIATRY

Decreased incidence of schizophrenia in type 1 diabetes

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

1 Previous studies have shown that people with schizophrenia have an increased risk of developing type 2 diabetes. This study investigated the association between type 1 diabetes and schizophrenia.

2 Data from 896 175 Finnish people born in 1950–9 were analysed from the National Population register; 5009 had type 1 diabetes.

3 In the group without type 1 diabetes, the incidence of schizophrenia was 0.56 per 10 000 person-years, compared with 0.21 per 10 000 person-years in the group with type 1 diabetes (P<0.001).

4 The significant decrease in incidence of schizophrenia among people with type 1 diabetes emphasises the importance of population-based epidemiological comorbidity studies.

Juvonen H, Reunanen A, Haukka J et al (2007) Incidence of schizophrenia in a nationwide cohort of patients with type 1 diabetes mellitus. *Archives of General Psychiatry* **64**: 894–9

'For ischaemic stroke, relative risk in type 1 diabetes was elevated to 6.3 times that of women without diabetes.'

'Weekly time spent in moderate or vigorous physical activity was significantly lower in young people with type 1 diabetes than controls.'