Keeping abreast of the latest diabetes research: HbA$_{1c}$ screening, older people and empagliflozin

Too busy to keep up to date with the latest research? In this new series, Trisha Dunning, Chair in Nursing, Deakin University and Barwon Health, Australia, selects the latest papers of interest to diabetes nurses.

Warfarin, sulphonylureas and serious hypoglycaemia
Romley J et al (2015) *BMJ* **351**: h6223

Bruising and bleeding are known risks associated with warfarin. At least two clinical drug references indicate warfarin could potentiate the hypoglycaemic effects of glipizide and glimepiride, due to pharmacokinetic changes.

This was a retrospective cohort analysis of a random sample people aged ≥65. The sample included 465 918 people with diabetes who filled prescriptions for glipizide or glimepiride between 2006 and 2011. Of these, 15.4% also filled a prescription for warfarin. The primary outcome measure was an emergency department visit or hospital admission for hypoglycaemia.

The study showed a substantial positive association between concomitant warfarin and glipizide/glimepiride use and emergency visits/hospital admission for hypoglycaemia. The effect was particularly apparent when warfarin was first commenced. The researchers recommended that blood glucose monitoring be undertaken when people using glipizide/glimepiride are commenced on warfarin in ambulatory settings. It may be prudent to monitor blood glucose in such people in all care settings.

HbA$_{1c}$ screening and antipsychotic medicines
Steylen P et al (2015) *Diabetes Metab Syndr Obes* **8**: 57–63

This was a point prevalence study to determine pre-diabetes and diabetes in people treated with antipsychotics and to compare the metabolic parameters of people with normoglycaemia with those with pre-diabetes and diabetes (*n*=169). Conversion rates for pre-diabetes to diabetes were determined after 12 months.

Fasting glucose and HbA$_{1c}$ were tested at baseline and at 12 months. Pre-diabetes was present in 39% and 8% had diagnosed diabetes. Metabolic syndrome was more prevalent in people with pre-diabetes than those with normoglycaemia (62% versus 31%). Most diabetes was diagnosed using fasting glucose but HbA$_{1c}$ contributed to the number of people diagnosed with pre-diabetes.

The authors concluded that pre-diabetes and diabetes were highly prevalent in people treated with antipsychotic medicines. They indicated HbA$_{1c}$ was a more stable parameter to identify people at increased risk of diabetes and recommended it be included in future screening programmes.

Older people and unplanned hospital admissions
Reed R et al (2015) *BMC Health Serv Res* **15**: 525

Community-dwelling older people increasingly require hospital admissions.

This study examined the contextual and systems factors that contributed to older people being admitted to hospital. They conducted a retrospective study using root cause analysis methods and interviewing 36 community-dwelling people aged >70 years admitted to a public hospital. They also interviewed 14 family members, 17 general practitioners and 12 other healthcare professionals. The study identified six main root causes:
● Minimal care preceding admission.
● Disease progression.
● Accessibility of home care.
● High complexity.
● Clinical error and delay.
● Patient delay seeking care.

They concluded that a range of factors, as well as disease characteristics, impact on hospital admissions in older people and that addressing such causes could reduce hospital admissions. While the study does not directly apply to older people with diabetes, it highlights the need for a comprehensive assessment of all the factors likely to affect older people's health and welfare.

Empagliflozin cardiovascular outcome trial
Zinmen B et al (2015) *N Engl J Med* **373**: 2117–28

The randomised double-blind placebo controlled study was undertaken to assess the effect of empagliflozin on cardiovascular outcomes. It was undertaken in 42 countries and involved 7000 people with type 2 diabetes of >10 years' duration and cardiovascular disease.

The mean HbA$_{1c}$ was 42 mmol/mol (8%) and eGFR between 30–60 mL/min/1.73 m^2. Participants were followed up for four years.

People in the treatment group had 35% fewer hospital admissions for heart failure and there were 38% fewer cardiovascular deaths in the treatment group compared to people in the control group. All-cause mortality was also reduced in the treatment group by 32%. The findings could not solely be attributed to improved glycaemia control.

The study highlights the fact the glucose-lowering medicines have benefits in addition to controlling hyperglycaemia and may change glucose-lowering prescribing algorithms in the future. ∎