**Abstract title:** Delirium is associated with inpatient morbidity in the Specialist Treatment of Inpatients: Caring for Diabetes in Surgery (STOIC-D) randomised controlled trial

**Aim:** To examine the incidence of and associations with delirium in hospitalised surgical patients in the STOIC-D trial and evaluate its association with healthcare-associated infection (HAI) and patient-day mean glucose (PDMG). STOIC-D Surgery investigated the effect of early intervention with a specialist-led “proactive” model of care for patients admitted with diabetes.

**Methods:** A total of 1,371 patients from STOIC-D Surgery were audited for delirium. Patients aged below 65 were excluded. Patient admissions were audited for 4 A’s Test score ≥4, positive Single question in Delirium and positive free-text identification of delirium or confusion. Delirium incidence was compared between groups. Multivariable regression was performed to identify associations with delirium. Co-variables included age, gender, Charlson Comorbidity Index (excluding age and diabetes), length of stay (LOS) and PDMG.

**Results:** Of the 781 patients meeting inclusion criteria (age ≥65), no significant difference was found in the overall incidence of delirium between the study groups. Older age (odds ratio [OR] 1.08, 95% Confidence interval [CI] 1.06-1.11, p < 0.001), higher Charlson Comorbidity Index (OR 1.09, 95% CI 1.01-1.19, p=0.036) and longer LOS (OR 1.14, 95% CI 1.11-1.17, P < 0.001) were independently associated with delirium occurrence. Delirium was independently associated with higher odds of HAI (OR 3.03, 95%CI 1.74-5.34, p<0.001) and LOS (OR 1.11, 95%CI 1.08-1.14, p<0.001).

**Conclusion:** Delirium is a clinically significant complication in hospitalised surgical patients with diabetes, associated with HAI and prolonged LOS. These findings highlight the relationship between glycaemic dysregulation, delirium, and adverse outcomes. Integrating delirium risk assessment and proactive glycaemic management may reduce complications and improve recovery in hospitalised surgical patients with diabetes.