**The Impact of Proactive Inpatient Glycaemic Intervention on Trauma Patient Outcomes: A Retrospective Cohort Study**

**Introduction:**

Hyperglycaemia is a common yet understudied complication in trauma patients, associated with adverse outcomes. The benefits of proactive glycaemic intervention in this population remain unclear. This study investigates whether early specialist-led inpatient glycaemic intervention improves clinical outcomes in trauma patients, including mortality, hospital-acquired infections (HAI), acute kidney injury (AKI), and length of stay (LOS).

**Aim:**

To investigate the association between early electronic specialist-led diabetes care and clinical outcomes in trauma inpatients.

**Methods:**

This study is a sub-analysis of the STOIC-D Surgery randomised controlled trial, which was conducted at a Level 1 trauma centre. Eligible participants were adult trauma patients with pre-existing diabetes or newly detected hyperglycaemia (random glucose ≥11.1 mmol/L). Patients were randomised into two groups: those receiving standard diabetes care or early glycaemic intervention by a specialist diabetes team. Primary outcome was median patient-day mean glucose (PDMG). Secondary outcomes included healthcare-associated infection (HAI) and mortality. Multivariable logistic and linear regression models were applied, adjusting for injury severity score (ISS), age, diabetes status, and comorbidities.

**Results:**

Between 18 February 2021 and 17 December 2021, 221 admissions to the trauma service met inclusion criteria. Median age was 61 years (interquartile range 44-75) 72% were male, 103 (47%) had pre-existing diabetes, and mean HbA1c was 6.7%. The 111 admissions in the intervention group compared with the 110 in the control group demonstrated lower median PDMG (8.1 vs. 8.5 mmol/L), reduced HAI incidence (18% vs. 30%), and reduced mortality (6.3% vs. 14%). On multivariable logistic regression, both allocation to the control group and longer length of stay remained independently associated with HAI incidence.

**Conclusion:**

In trauma surgical inpatients, early specialist-led glycaemic intervention significantly improves clinical outcomes, supporting its integration into routine care. Future research should focus on validating these findings in larger, multicentre prospective trials.