**Investigating the relationship between diabetes distress and diabetic ketoacidosis in young adults with type 1 diabetes**

**Background&Aims:** The transition period from paediatric to adult type 1 diabetes mellitus (T1DM) care can be challenging with the demands of T1DM self-management, changing life stages and the risk of diabetic ketoacidosis (DKA). These complexities can contribute to great emotional burden or psychosocial turmoil defined as diabetes distress (DD). This retrospective study aimed to both investigate the temporal association between DKA and DD in adolescents and young adults, and identify predictors of DD and DKA.
**Methods:** Data was collected on patients with T1DM aged 15 to 26 years attending a tertiary hospital diabetes transition clinic over 7 years. DD was defined as a Problem Areas in Diabetes questionnaire score ≥40. Statistical analysis was performed with generalized linear mixed modelling (GLMM) using R v4.4.0.
**Results:** 300 patients (49.7% female) were followed for a median of 2.6 years (IQR 1.5-4.3). 40.4% of patients with DD developed DKA whilst 16.1% of patients without DD developed DKA. GLMM did not show a significant temporal relationship between DD and DKA. Poisson regression demonstrated that a 1-year increase in age was associated with a 14% decrease in DKA incidence (IRR 0.86 [0.78,0.94], p<0.001). Each 1% increase in HbA1c increased DKA risk by 1.24-fold ([1.12,1.39], p<0.001). Logistic modelling similarly showed a 1% increase in HbA1c raised odds of DD by 2.8-fold ([2.05,3.81], p<0.001). The likelihood of males developing DD was significantly lower than for females (OR 0.02 [0.00,0.20], p=0.001).
**Discussion/Conclusion:** Despite co-occurrence of DD and DKA in the T1DM transition population, this study identified no significant temporal relationship between presenting with DKA and subsequently developing DD, or vice-versa. Longitudinal analyses, however, support HbA1c as a strong positive predictor of both DD and DKA. Further research into the impact of psychological interventions on reducing DD and DKA is needed.