

Evaluating adherence to national diabetic ketoacidosis management guidelines within six hospitals across the UK

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Introduction

The Joint British Diabetes Societies (JBDS) published guidelines to assist diabetic ketoacidosis (DKA) management in adults in the UK.¹ DKA is not an uncommon topic to be audited; however, it is uncertain whether similar initiatives to assess differences across multiple centres exist. The aim of this project is to evaluate the differences in DKA management across hospitals in the UK.

Methods

Retrospective analysis of data from six hospitals across the UK identified 443 DKA episodes. Data were collected between October 2021 and September 2022. All DKA admissions meeting the DKA criteria set by the JBDS guidelines were included. Patients who were <16 years of age and those who self-discharged before treatment completion were excluded. DKA was diagnosed as glucose >11 mmol/L, ketones >3 mmol/L or at ++ urine ketones, pH <7.3 or bicarbonate <15 mmol/L. Euglycaemic DKA was defined as all of the DKA criteria except glucose. Pseudonymised data on precipitating factors, fixed-rate intravenous insulin infusion (FRIII) and fluid prescriptions, hourly glucose and ketone monitoring were collected. Data were analysed using the Kruskal–Wallis test. Significance level was accepted at 95% ($p < 0.05$).

Results

Participating hospitals are coded from A to F. Significant variations were found in fluid prescriptions (A – 92.1%, B – 101.3%, C – 89.7%, D – 76.0%, E – 98.3%, F – 115.5%; $p < 0.001$), glucose monitoring (A – 103.1%, B – 86.1, C – 88.9%, D – 106.4%, E – 99.2%, F – 95.7%; $p < 0.001$) and ketones monitoring (A – 71.5%, B – 85.1%, C – 70.0%, D – 59.3%, E – 65.0%, F – 85.7%; $p < 0.001$). No significant difference was found between hospitals for FRIII prescription (A – 99.5%, B – 100.0%, C – 100.0%,

D – 100.0%, E – 93.9%, F – 99.8%; $p = 0.064$). The recorded precipitating aetiologies were intercurrent illness (36.6%), suboptimal compliance (32.1%), COVID-19 (3.6%), drugs (0.2%), immunotherapy (0.2%), first presentation of diabetes (8.8%), sepsis (2.9%), SGLT2 (0.9%), surgery (0.9%) and undetermined (12.0%).

Conclusion

Despite common precipitating factors and identical guidelines for DKA management across the centres involved, significant variation is observed between hospitals in the UK. A collective approach with a use of a centralised registry can enable shared better practice between healthcare professionals and their respective teams and lead to better patient outcomes. ■

Reference

- 1 Joint British Diabetes Societies for Inpatient Care. *The management of diabetic ketoacidosis in adults (revised June 2021)*. www.diabetes.org.uk/joint-british-diabetes-society [Accessed 25 January 2023].

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