

Analysis of recent trends in aetiology of diabetes-related ketoacidosis

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Introduction

Diabetes-related ketoacidosis (DKA) is a commonly encountered acute endocrine emergency that requires prompt recognition and treatment. Most often, DKA is triggered by risk factors that are preventable. There are only limited studies evaluating the precipitating causes of DKA and depicting their trends over the years. The latter is important in the prevention of DKA by ensuring appropriate education and interventions.

Materials and methods

To study the trends of aetiologies that precipitate DKA over the years, we conducted a retrospective analysis of all DKA-related admissions across six regional hospitals in the UK between April 2014 to November 2021. DKA was diagnosed as serum glucose ≥ 11 mmol/L, ketones ≥ 3 mmol/L and pH ≤ 7.3 or bicarbonate ≤ 15 mmol/L. Precipitating factors were classified as alcohol-related, COVID-19, drug-induced, intercurrent illness, new diagnosis of type 1 diabetes, SGLT-2 inhibitor-associated, sepsis, suboptimal compliance to treatment and trauma respectively. Statistical analysis was done using SPSS version 27. Results are expressed in percentage and proportion.

Results and discussion

A total of 1,463 DKA episodes were included in the analysis. Intercurrent illness (34.8%; n=509) and suboptimal compliance to treatment (28.2%; n=413) were the most common factors identified. Other notable causes of DKA were: New diagnosis of type 1 diabetes (8.9%; n=130), sepsis (4.2%; n=62), alcohol-related (3.9%; n=57). The proportion of these aetiologies has remained consistent over the years. Newer varieties of precipitating causes such as SGLT-2 inhibitor-associated¹ (1.3%; n=19) and other drug-induced (1.1%; n=16) had an increasing trend since 2019. COVID-19² accounted for 5% of the total episodes (n=41). Precipitating aetiology was unclear in 8% (n=187) of the DKA

admissions. However, the proportion of unclear causes as precipitating aetiology for DKA has been steadily down trending since 2016 (24.0% in 2016, 19.2% in 2017, 14.5% in 2018, 16.2% in 2019, 12.6% in 2020 and 8.0% in 2021).

Conclusion

Infections and suboptimal compliance to treatment accounted for a majority of 63% of the DKA cases, suggesting more work needs to be done to minimise these preventable causes. A rise in medication-induced DKA prompts the need to educate patients and clinicians regarding the role of these contributory medications. The decreasing trends seen in unclear causes of DKA is a welcome result as increasing awareness regarding the known or established precipitating factors help in preventing recurrences in patients, as they could be vigilant in regard to these in future. ■

References

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