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Prescient Variables of Diabetic Ketoacidosis in Patients with recently beginning Type-1 Diabetes

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Abstract

Diabetic ketoacidosis (DKA) is a serious complication of type-1 diabetes (T1D), especially prevalent in the initial stages post-diagnosis. Identifying predictive factors can aid in early intervention and management. To determine the predictive variables associated with the onset of DKA in patients with recently diagnosed type-1 diabetes. A retrospective cohort study was conducted on patients diagnosed with type-1 diabetes within the past clinical and demographic data were analyzed to identify variables predictive of DKA occurrence. Describe findings regarding predictive variables. Include statistical significance and key factors such as age, initial blood glucose levels, presence of ketones, etc. Summarize the main findings and implications. Discuss potential strategies for early identification and prevention of DKA in newly diagnosed type-1 diabetes patients.

Keywords: Diabetic ketoacidosis; type-1 diabetes; Predictive factors; Early intervention; Retrospective study

Introduction

Diabetic ketoacidosis (DKA) remains a significant acute complication in individuals with type-1 diabetes (T1D), particularly during the initial phases following diagnosis [1]. Characterized by hyperglycemia, ketosis, and metabolic acidosis, DKA can lead to severe morbidity and mortality if not promptly recognized and managed. Despite advances in diabetes care, the incidence of DKA at diagnosis of T1D continues to pose clinical challenges, highlighting the need for identifying predictive variables that could facilitate early intervention and prevention. Early studies have suggested several factors associated with an increased risk of DKA in newly diagnosed T1D patients, including younger age, higher initial blood glucose levels, and delayed initiation of insulin therapy. However, the landscape of T1D management and patient demographics may influence the predictive profile of DKA [2-5]. Understanding these variables could provide clinicians with valuable insights into individualized risk assessment and targeted preventive strategies. This retrospective cohort study aims to elucidate the prescient variables predictive of DKA occurrence in patients with recently diagnosed T1D. By analyzing a comprehensive dataset encompassing clinical and demographic characteristics, we seek to identify key predictors that can inform clinical decision-making and enhance early detection efforts. Ultimately, the findings from this study may contribute to optimizing the care pathways for individuals at heightened risk of DKA during the early stages of T1D diagnosis.

Materials and Methods

This retrospective cohort study included 105 patients diagnosed with type-1 diabetes within the past. Eligible participants were identified through electronic health records (EHR) and included those who presented with confirmed T1D based on clinical criteria and laboratory findings. Clinical and demographic data were extracted from the EHR system for each participant [6]. Key variables of interest included age at diagnosis, gender, initial presenting symptoms, initial blood glucose levels, presence of ketones at diagnosis, HbA1c levels, family history of diabetes, and time to initiation of insulin therapy. Data were anonymized and securely stored in compliance with institutional protocols and ethical standards. The primary outcome measure was the occurrence of diabetic ketoacidosis (DKA) within post-diagnosis. DKA was defined based on established criteria including blood glucose levels >250 mg/dL, arterial pH <7.3 or bicarbonate <15 mmol/L, and presence of ketonemia or ketonuria.

Descriptive statistics were used to summarize baseline characteristics of the study population [7-10]. Variables associated with the occurrence of DKA were analyzed using univariate and multivariate logistic regression models. Adjusted odds ratios (OR) and 95% confidence intervals (CI) were calculated to assess the strength of association between predictor variables and DKA incidence. Statistical significance was set at $p < 0.05$. This study was conducted in accordance with the principles outlined in the Declaration of Helsinki and approved by the institutional review board (IRB) or ethics committee. Informed consent was waived due to the retrospective nature of the study and the use of anonymized data. Limitations of the study included its retrospective design, which relied on available data within the EHR system. Additionally, the study was conducted at a single center, which may limit the generalizability of findings to other populations or settings. This section outlines the study design, participant selection criteria, data collection methods, outcome measures, statistical analysis approach, ethical considerations, and potential limitations of the study. Adjust details as per specific study protocols and institutional requirements.

Conclusion

In this retrospective cohort study, we aimed to identify predictive variables associated with the occurrence of diabetic ketoacidosis (DKA) in patients with recently diagnosed type-1 diabetes (T1D). Our findings highlight several key factors that may contribute to the risk of DKA during the early phases of T1D management. The analysis revealed that [summarize main findings related to predictive variables,

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e.g., younger age, higher initial blood glucose levels, delayed initiation of insulin therapy] were significantly associated with an increased risk of DKA. These findings underscore the importance of timely diagnosis and initiation of insulin therapy in mitigating the risk of DKA among newly diagnosed T1D patients.

Moreover, our study reinforces the clinical utility of assessing baseline characteristics such as [mention specific variables studied] to identify individuals at heightened risk of DKA. Early recognition of these risk factors could facilitate targeted interventions, including patient education on symptom recognition, close monitoring of blood glucose levels, and personalized insulin initiation protocols. Despite these insights, our study has limitations, including its retrospective nature and reliance on data from a single center. Future prospective studies involving larger, diverse cohorts are warranted to validate our findings and further elucidate the complex interplay of predictive factors influencing DKA risk in T1D. In conclusion, by identifying and addressing the prescient variables associated with DKA in newly diagnosed T1D patients, healthcare providers can enhance clinical management strategies and improve outcomes for individuals at risk of this serious complication.

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Conflict of Interest

None

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