恩格列净致正常血糖性糖尿病酮症酸中毒的文献分析Δ

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中图分类号　R977.1+5　　**文献标志码**　A　　**文章编号**　1001-0408（2026）14-1874-06
DOI　10.6039/j.issn.1001-0408.2026.14.13

摘　要　目的　探讨恩格列净致正常血糖性糖尿病酮症酸中毒（euDKA）的临床特征，为安全用药提供参考。**方法**　检索PubMed、Web of Science、中国知网、万方数据，收集并分析恩格列净致euDKA的病例报告。采用Naranjo's量表评价二者的关联性。**结果**　共纳入29例患者，包括男性16例、女性13例，中位年龄58岁；所有患者均为2型糖尿病患者，22例患者至少合并1种基础疾病；euDKA的中位发生时间为用药后60 d，7例发生于用药后2周内；围手术期、禁食、低碳水或生酮饮食为主要诱因。临床表现以恶心呕吐、乏力、呼吸急促、心动过速为主。恩格列净与euDKA的关联性评价均为“很可能”。不良反应严重程度包括3级（重度）13例，4级（危及生命）16例。所有患者停用恩格列净并经治疗后好转。**结论**　euDKA是恩格列净的严重不良反应，多发生于用药早期；围手术期、禁食及生酮饮食易诱发euDKA；老年人、合并多种基础疾病患者为高危人群。临床用药前应评估风险，用药早期加强血酮及酸碱平衡监测，择期术前停药并避免长时间禁食；确诊后需立即停药并给予胰岛素、补液等治疗，以改善预后。

关键词　恩格列净；钠-葡萄糖协同转运蛋白2抑制剂；正常血糖性糖尿病酮症酸中毒；不良反应；病例分析

Literature analysis of euglycemic diabetic ketoacidosis induced by empagliflozin

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ABSTRACT　OBJECTIVE To investigate the clinical characteristics of euglycemic diabetic ketoacidosis (euDKA) induced by empagliflozin, and provide references for safe medication. **METHODS** Case reports of euDKA induced by empagliflozin were retrieved and analyzed from PubMed, Web of Science, CNKI, and Wanfang Data. The Naranjo's scale was adopted to assess the causal relationship between empagliflozin and euDKA. **RESULTS** A total of 29 patients were enrolled, including 16 males and 13 females, with a median age of 58 years. All patients were diagnosed with type 2 diabetes mellitus; 22 patients had at least one comorbidity. The median time to euDKA onset was 60 days after administration, and 7 cases occurred within 2 weeks of treatment. Perioperative periods, fasting, and low-carbohydrate or ketogenic diets were the main predisposing factors. Common presentations included nausea, vomiting, fatigue, tachypnea, and tachycardia. The causal relationship between empagliflozin and euDKA was assessed as "probable" in all cases. According to adverse reaction severity grading, 13 cases were grade 3 (severe) and 16 cases were grade 4 (life-threatening). All patients discontinued empagliflozin and recovered after corresponding treatment. **CONCLUSIONS** euDKA is a serious adverse reaction to empagliflozin, which mostly occurs early in treatment. Perioperative periods, fasting, and ketogenic diets are prone to induce euDKA. Elderly patients and those with comorbidities are at higher risk. Risk assessment should be conducted before clinical administration; blood ketones and acid-base monitoring should be strengthened in the early medication period; withhold the drug before elective surgery, avoid prolonged fasting; upon diagnosis, discontinue empagliflozin and initiate intravenous insulin, provide fluid resuscitation promptly, and use other treatments to improve patient prognosis.

KEYWORDS　empagliflozin; sodium-glucose cotransporter 2 inhibitors; euglycemic diabetic ketoacidosis; adverse reaction; case analysis

恩格列净为高选择性钠-葡萄糖协同转运蛋白2（sodium-glucose cotransporter 2，SGLT2）抑制剂，可通过抑制肾近端小管葡萄糖重吸收，促进尿糖排泄而降低血糖[1]。同时，恩格列净已被证实具有心血管及肾脏保护作用，并被美国糖尿病学会推荐为合并心肾功能受损的

Δ**基金项目**　北京市第三批中药骨干后备人才培养项目（No.京中医科字〔2022〕59号）

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