INPLASY

Acetazolamide for the Management of Diuretics-Induced Chloride-Depletion Alkalosis

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ADMINISTRATIVE INFORMATION

Support - NA.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202510077

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 January 2025 and was last updated on 20 January 2025.

INTRODUCTION

Review question / Objective To evaluate the efficacy of acetazolamide in treating chloride-depletion alkalosis with a focus on clinical research data.

Condition being studied Chloride-Depletion Alkalosis.

METHODS

Search strategy A comprehensive search was conducted across electronic databases such as Pub-Med, Embase, and Web of Science. The following keywords were used: acetazolamide, alkalosis diuretics. All abstracts and titles were screened to identify studies examining the use of acetazolamide in diuretics-induced alkalosis. Exclusion criteria included non-human studies, articles not in English, and articles not available in full text. Reference lists were reviewed to identify additional relevant publications. Nonhuman or non-English language articles were excluded. Identified articles were reviewed and summarized by two authors. Data were extracted and collected from the included articles, including dose, route, frequency, indication, duration of therapy, cause of disorder, and primary and/or secondary outcomes. Patient-related data included age, gender, and patient outcome. All data were analyzed using descriptive statistics.

Participant or population Adult patients (> 18 years old).

Intervention Acetazolamide.

Comparator NA.

Study designs to be included Randomized controlled trial, Cohort study, Case-control studies.

Eligibility criteria Exclusion criteria included non-human studies, articles not in English, and articles not available in full text. Reference lists were reviewed to identify additional relevant publications.

Information sources A comprehensive search was conducted across electronic databases such as Pub-Med, Embase, and Web of Science.

Main outcome(s) Data were extracted and collected from the included articles, including dose, route, frequency, indication, duration of therapy, cause of disorder, and primary and/or secondary outcomes. Patient-related data included age, gender, and patient outcome. All data were analyzed using descriptive statistics.

Quality assessment / Risk of bias analysis To standardize the interpretation of the Consolidated Standards of Reporting Trials (CONSORT) guidelines for randomized trials, Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for observational studies, and Consensus-based Clinical Case Reporting Guideline Development (CARE) guidelines for case reports, explicit criteria for each item on the respective checklists were pre-established by three authors in accordance with the CONSORT, STROBE, and CARE explanation and elaboration documents. Based on these definitions, detailed data sheets were developed, containing questions for all items on the CONSORT, STROBE, and CARE checklists. (Table 1). Depending on the study design, the appropriate checklist was utilized to evaluate the quality and adherence to reporting standards. The CONSORT checklist was applied to randomized controlled trials, the STROBE checklist was used for observational studies, such as cohort and case–control studies, and the CARE checklist was employed for case reports. Each included study was independently assessed. The assessors reviewed the studies and recorded their evaluations for each checklist item. Disagreements between assessors were resolved through discussion until consensus is reached. Adherence to the criteria was assessed with a single question for each item when no subitems were present. For items with multiple subitems, each subitem was assessed individually, resulting in a total of 34 questions across all three guidelines. Responses to these questions were scored as follows: "Yes" (all requirements fulfilled) received a score of 2, "Partial" (some but not all requirements fulfilled) received a score of 1, "No" (not all requirements fulfilled) received a score of 0, and "Not Applicable" (NA) was recorded where relevant. Depending on the specific item, one or more checkpoints were implemented to ensure that all requirements were thoroughly evaluated, based on the respective CONSORT, STROBE, and CARE explanation and elaboration documents (Figure 1 & 2). Final scores for each study were aggregated across all items and expressed as a percentage of the maximum achievable score (Figure 1 & 2).

Strategy of data synthesis Due to the anticipated variability among the included studies, conducting a meta-analysis was not feasible. Instead, the results were synthesized narratively. The findings were structured and presented according to the study design and the interventions evaluated, emphasizing the endpoints and conclusions reported in each study.

Subgroup analysis NA.

Sensitivity analysis NA.

Language restriction English.

Country(ies) involved Saudi Arabia.

Keywords Acetazolamide; Chloride-Depletion Alkalosis; Metabolic Alkalosis; Systematic Review.

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