INPLASY PROTOCOL

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None declared.

Subcutaneous continuous glucose monitoring compared to frequent point-of-care measurement in critically ill patients: a systemic review and meta-analysis

Yao, Y[1]; Zhao, YH[2]; Huang, HB[3]; Xu, Y[4].

Review question / Objective: **We aim to perform a systemic review and meta-analysis to determine if subcutaneous continuous glucose monitoring compared to frequent point-of-care measurement in critically ill patients results in a statistically significant difference in outcomes in critically ill adult patients.**
Condition being studied: **Subcutaneous continuous glucose monitoring compared to frequent point-of-care measurement in critically ill patients. Authors of the current study come from a tertiary hospital in China and all the members have extensive experience in glucose control in critically ill patients. Furthermore, these authors have published several meta-analyses, which can guarantee the completion of the current study.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 December 2021 and was last updated on 23 December 2021 (registration number INPLASY2021120102).

INTRODUCTION

Review question / Objective: **We aim to perform a systemic review and meta-analysis to determine if subcutaneous continuous glucose monitoring compared tofrequent point-of-care measurement in critically ill patients results in a statistically significant difference in outcomes in critically ill adult patients.**

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METHODS

Participant or population: AudIt critically ill patients (>=18 years old).

Intervention: Adult critically ill patients receiving subcutaneous continuous glucose monitoring.

Comparator: Adult critically ill patients receiving frequent point-of-care measurement.

Study designs to be included: RCTs.

Eligibility criteria: Glucose regulation in the intervention group must be performed by use of a subcutaneous CGM system. In the control group, blood glucose levels must be regulated by conventional methods.

Information sources: We will search the references in the included studies and personal files. We will request advice from experts in the field. Additionally, we will search associated articles from critical care, surgical, infection meetings; and contacted the authors of included trials, if need.

Main outcome(s): Incidence of hypoglycaemia.

Quality assessment / Risk of bias analysis: The Cochrane risk of bias tool will be adopted to assess the risk of bias for each RCT. For each RCT, risk of bias is evaluated as following: 1) random sequence generation; 2) allocation concealment; blinding of participants and personnel; 3) blinding of outcome assessment; 4) incomplete outcome data; 5) selective reporting; 6) other bias. Meanwhile, we also perform estimation on “overall” risk of bias. For each domain, risk of bias was categorized as “low,” “unclear,” or “high.” Disagreement for all methodological steps will be resolved by discussion.

Strategy of data synthesis: An overall effect estimate for all data as risk ratio (RR) / mean difference (MD) with 95% CI will be calculated. The presence of statistical heterogeneity among the studies by using the Q statistics and the heterogeneity by using the I2 statistic was addressed. A p value of less than 0.10 or an I2 value of greater than 50% as indicative was considered of substantial eterogeneity. A random-effects model or a fixed-effects mode will be chosen when significant heterogeneity or non-significant heterogeneity was not observed, respectively.

Subgroup analysis: Subgroup analysis will be basing on conducted CGM devices; Study design; Control BG measurement; Low limitation of target BG range; Average APACHEII score; Cuntory ; % Diabetes.

Sensitivity analysis: None.

Country(ies) involved: China.

Keywords: subcutaneous continuous glucose, critical illness, meta-analysis, glucose control.

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