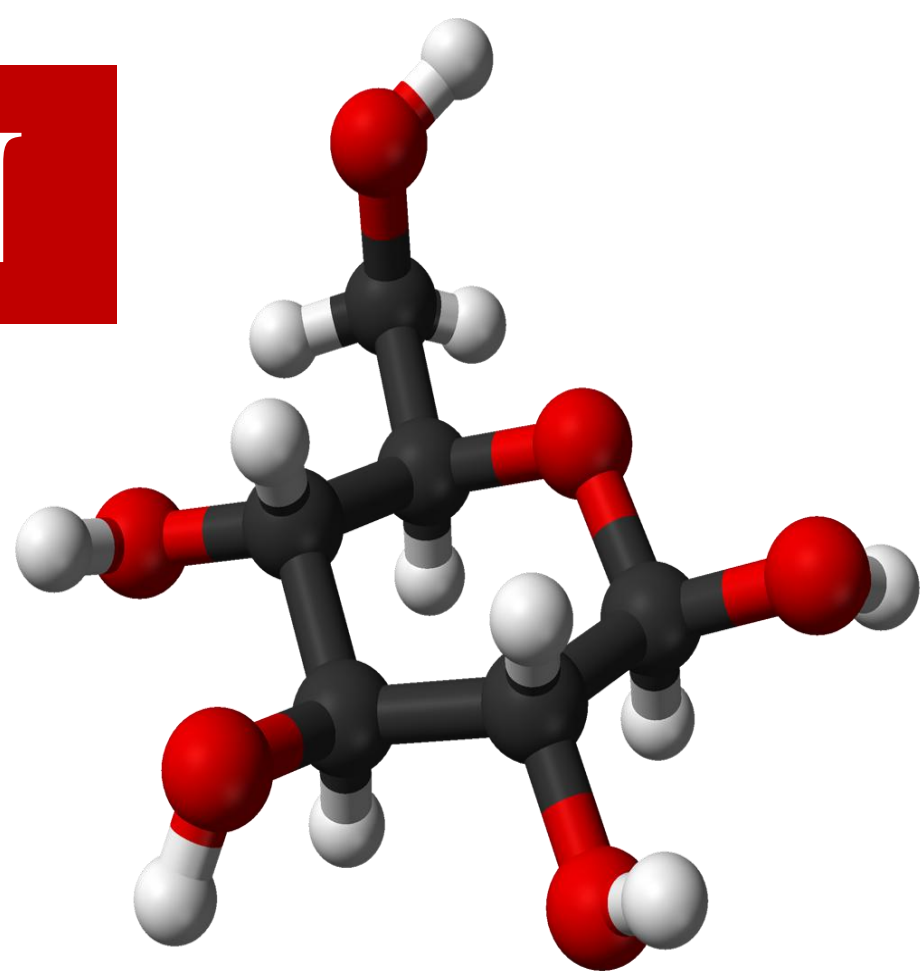


REVIEW QUESTION

In Type 2 Diabetic patients undergoing cardiac surgery does continuing Metformin as opposed to discontinuing the medication prior to surgery cause lactic acidosis?



INTRODUCTION

- Diabetes during cardiac surgery can lead to increased infection, wound healing issues, prolonged hospital stay, and mortality.
- Hyperglycemia affects 77-95% of patients within 24 hours post-surgery.
- Metformin a primary treatment for type 2 diabetes mellitus which is usually discontinued due to lactic acidosis concerns can complicate care.
- Maintaining euglycemia is crucial in patient care during cardiac surgery.

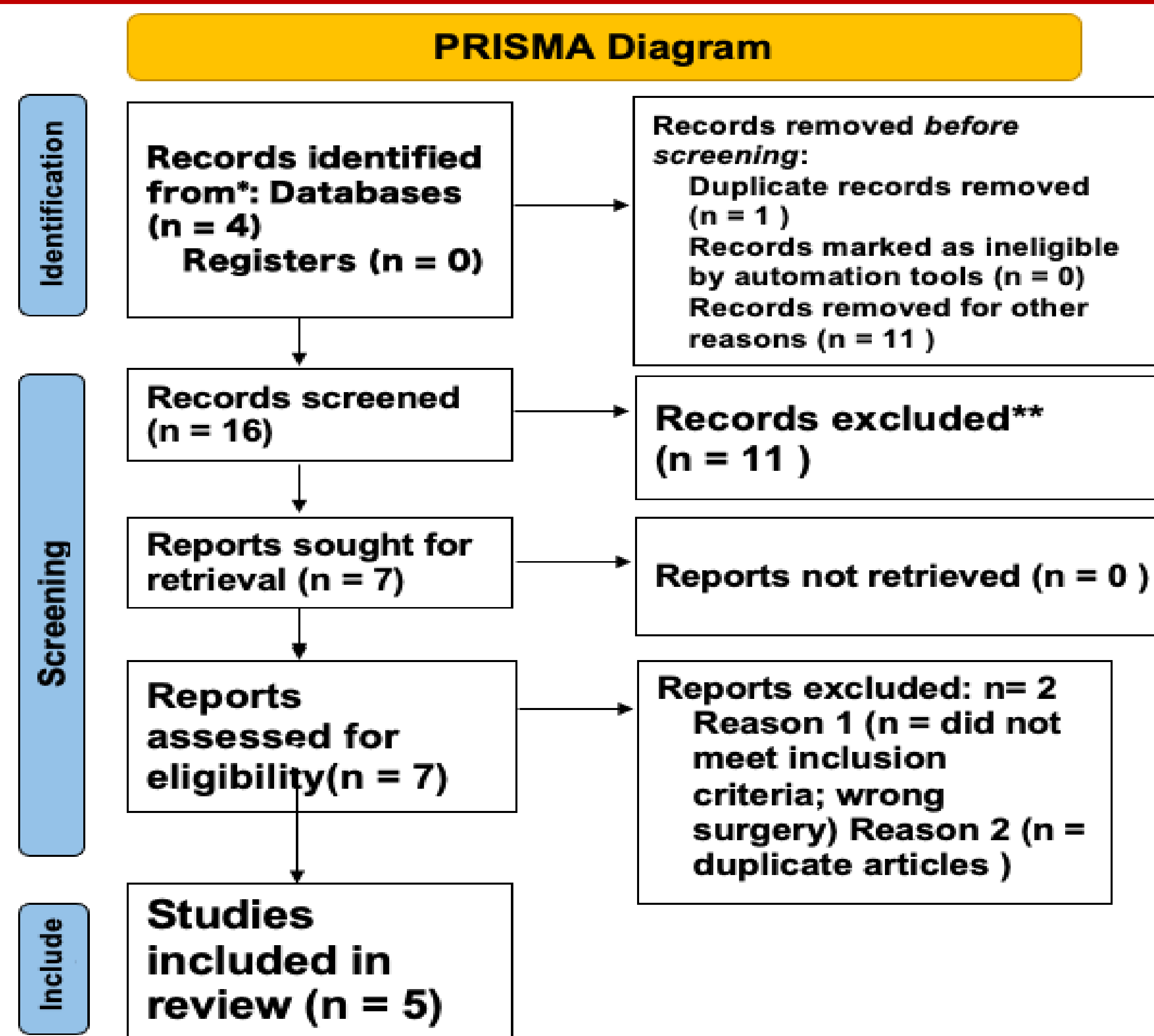
BACKGROUND & SIGNIFICANCE

- Inadequately managed diabetes mellitus presents numerous hazards in the peri-op and postoperative period.
- Surgical stress and anesthetic medications can exacerbate hyperglycemia.
- Poorly controlled hyperglycemia can impair wound healing, increase risk of infection, cause renal and neurological impairment and increase mortality
- Current practice is to start patients on insulin and stop oral metformin for fear for developing postoperative lactic acidosis
- Our research has found that tight glycemic control can be achieved by allowing patients to continue previously prescribed oral medication (Metformin) barring any other disease states to exacerbate their diabetes

PROJECT DESIGN

- Design:** A comprehensive systematic review of current literature was performed summarizing relevant studies on our topic.
- Sample:** The total sample number across included studies was 2,451.
- Inclusion Criteria:** Adult patients, Type 2 diabetes, undergoing cardiac surgery: Aortic valve repair, Mitral valve repair, CABG, previously on metformin
- Exclusion Criteria:** Type 1 diabetics, pediatric patients, non-cardiac surgery, ESRD, Liver disease, Septic, Cancer diagnosis
- Setting:** Patients included in these studies were all hospital in patients

SEARCH STRATEGY

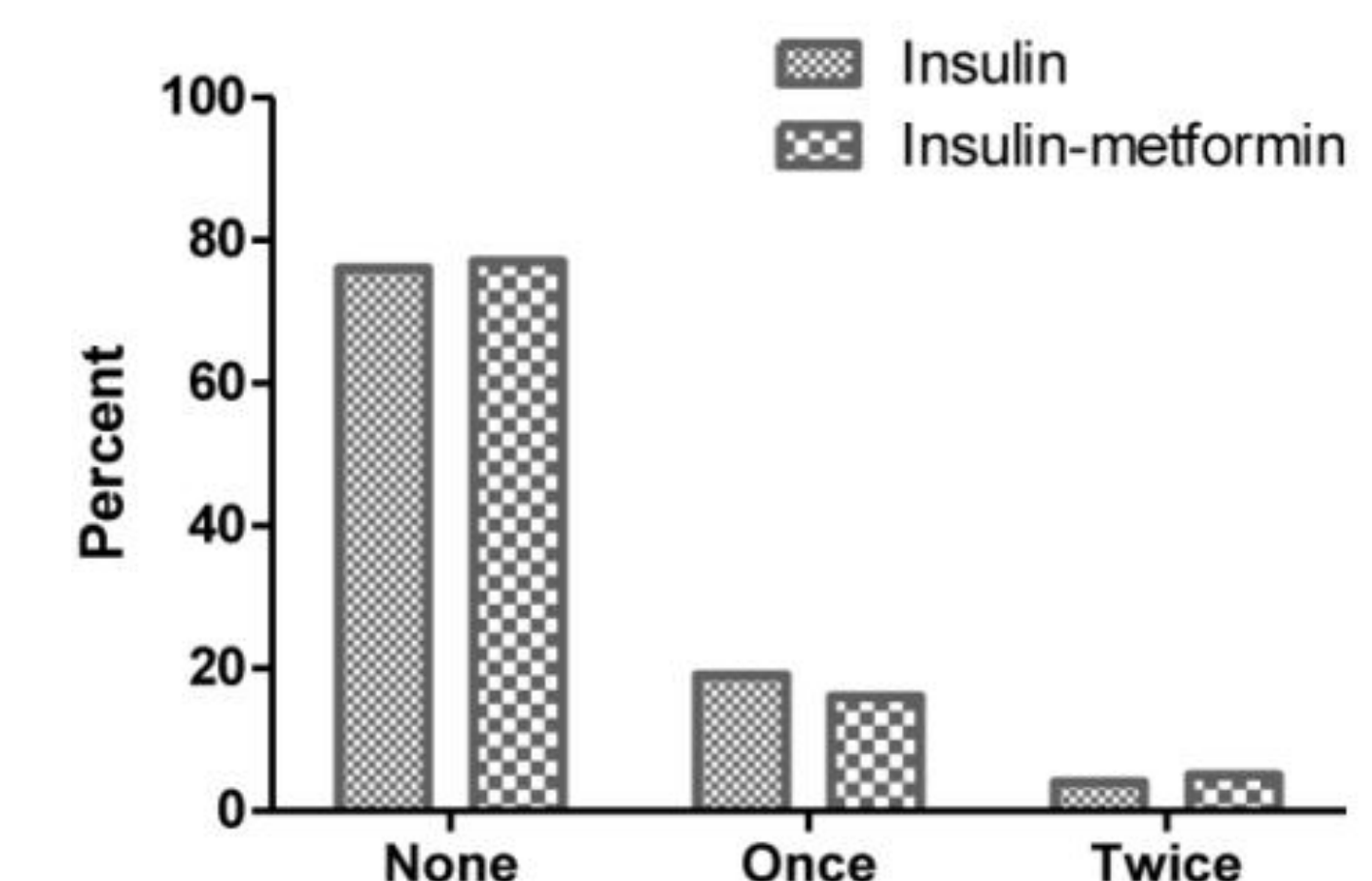


QUALITY APPRAISAL

- The Joanna Briggs Institute critical appraisal tool was used to appraise five articles, with one being a randomized control trial with Level 1c evidence, and the others being moderate quality evidence.
- Common gaps included limited confounder adjustment, unclear exposure status, and absence of blinding.
- A meta-analysis was not used due to clinical diversity, study design variability, and differences in data collection and treatment, leading to a narrative synthesis.

RESULTS

- Studies on metformin usage in cardiac patients found no increased in lactic acid, death rates, or systemic issues.
- The review also found fewer cases of long intubation times, infections, and complications such as vasopressor use in cardiac patients.



DISCUSSION & IMPLICATIONS

- Recent finding found no significant lactic acidosis increase even at high doses
- The authors collectively support metformin as an effective and safer alternative to insulin by reducing hospital stays without adverse effects
- Current study suggests that metformin before cardiac surgery doesn't raise risks but rather reduce complications

Clinical Implications

- Recent studies supports continuing metformin until the night before surgery with minimal impact to lactate levels
- Metformin was confirmed by one author to be safe in diabetic patients undergoing CABG surgery
- Further large scales are needed to validate these findings for future research

REFERENCE & CONTACT



Christine Daigbe

cd922@sn.Rutgers.edu

Lindsey Gibbs

lv284@sn.Rutgers.edu

Irene Ofodile

Ofodileio111@sn.Rutgers.edu