

INTISARI

Latar Belakang: Operasi jantung menyebabkan respons stres metabolik yang dapat memicu hiperglikemia, resistensi insulin, dan peningkatan variabilitas glikemik. Pemberian karbohidrat oral praoperasi khususnya maltodekstrin, merupakan bagian dari protokol *Enhanced Recovery After Surgery* (ERAS) bertujuan untuk menurunkan resistensi insulin dan memperbaiki status metabolik pascaoperasi.

Tujuan: Membandingkan pemberian maltodekstrin oral praoperasi dengan cairan non-karbohidrat oral terhadap variabilitas glikemik pada pasien dewasa yang menjalani operasi jantung.

Metode: Penelitian *randomized controlled trial* tersamar tunggal dilakukan pada 50 pasien dewasa yang menjalani operasi jantung, yang dibagi secara acak menjadi dua kelompok: kelompok maltodextrin menerima 400 ml maltodekstrin oral dan kelompok cairan non-karbohidrat menerima cairan non-karbohidrat oral, diberikan 2 jam sebelum operasi. Variabilitas glikemik dinilai menggunakan J-index, dan kebutuhan insulin dicatat selama 24 jam pascaoperasi.

Hasil : Tidak ditemukan perbedaan bermakna antar kelompok pada kadar glukosa darah sewaktu pascainduksi ($p=0,281$), selama *cardiopulmonary bypass* (CPB) ($p=0,749$), pasca-CPB ($p=0,418$), 0 jam pascaoperasi ($p=0,120$), maupun 24 jam pascaoperasi ($p=0,712$). Analisis perbandingan selisih kadar GDS tiap waktu pengukuran antar kelompok menunjukkan bahwa tidak ada perbedaan dari selisih glukosa darah sewaktu antara pasca induksi dan durante CPB ($p=0,377$), antara durante CPB dan pasca CPB ($p=0,509$), antara pasca CPB dan 0 jam pascaoperasi ($p=0,388$), antara 0 dan 24 jam pascaoperasi ($p=0,490$), dan antara pasca induksi dan 0 jam pascaoperasi ($p=0,455$). J-index juga tidak berbeda signifikan antar kelompok ($p=0,410$). Namun, pemberian insulin perioperatif jika kadar GDS >200 mg/dl pada kelompok cairan non-karbohidrat secara signifikan lebih tinggi dibandingkan kelompok maltodextrin ($p=0,004$).

Kesimpulan : Pemberian maltodekstrin oral praoperasi tidak dapat menurunkan variabilitas glikemik.

Kata Kunci: Maltodekstrin, pemuatan karbohidrat praoperasi, variabilitas glikemik, J-index, kebutuhan insulin, operasi jantung.

ABSTRACT

Background: Cardiac surgery triggers a metabolic stress response that can lead to hyperglycemia, insulin resistance, and increased glycemic variability. Preoperative oral carbohydrate loading, particularly with maltodextrin, is part of the Enhanced Recovery After Surgery (ERAS) protocol and aims to reduce insulin resistance and improve postoperative metabolic status.

Objective: To compare the effects of preoperative oral maltodextrin with non-carbohydrate oral fluids on glycemic variability in adult patients undergoing cardiac surgery.

Methods: This single-blind randomized controlled trial included 50 adult patients undergoing cardiac surgery. Participants were randomly assigned to two groups: the intervention group received 400 ml of oral maltodextrin, and the control group received non-carbohydrate oral fluids, administered 2 hours before surgery. Glycemic variability was assessed using the J-index, and insulin requirements were recorded during the first 24 hours postoperatively.

Results: There were no significant differences between groups in blood glucose levels post-induction ($p=0.281$), during cardiopulmonary bypass (CPB) ($p=0.749$), post-CPB ($p=0.418$), at 0 hours postoperatively ($p=0.120$), or at 24 hours postoperatively ($p=0.712$). Comparative analysis of the changes in blood glucose levels between measurement time points showed no significant differences between groups, including from post-induction to during CPB ($p=0.377$), during CPB to post-CPB ($p=0.509$), post-CPB to 0 hours postoperatively ($p=0.388$), from 0 to 24 hours postoperatively ($p=0.490$), and from post-induction to 0 hours postoperatively ($p=0.455$). The J-index also did not differ significantly between groups ($p=0.410$). However, perioperative insulin administration if GDS levels >200 mg/dl in the non-carbohydrate fluid group was significantly higher than in the maltodextrine group ($p=0.004$).

Conclusion: Preoperative oral maltodextrin administration does not reduce glycemic variability.

Keywords: maltodextrin, preoperative carbohydrate loading, glycemic variability, J-index, insulin requirement, cardiac surgery