

INTISARI

Tujuan Penelitian: Menilai perbedaan saturasi oksigen regional saluran pencernaan pada bayi kurang bulan yang mendapatkan transfusi sel darah merah dengan dan tanpa nutrisi enteral, serta mempelajari dampak luaran klinisnya.

Metode: Eksperimental *Randomized Controlled Trial* (RCT) dengan pengacakan *open label*. Subjek penelitian adalah bayi kurang bulan dengan usia kehamilan <37 minggu yang mendapatkan transfusi sel darah merah. Subjek dibagi menjadi dua kelompok: kelompok intervensi yang mendapatkan nutrisi enteral dan kelompok kontrol yang menjalani puasa selama transfusi. Pemantauan oksigenasi jaringan dilakukan menggunakan *Near-infrared spectroscopy* (NIRS) untuk mengukur saturasi oksigen regional splanknik (rSO₂S) dan saturasi oksigen regional serebral (rSO₂C), serta rasio oksigenasi jaringan splanknik serebral (SCOR).

Hasil Penelitian: Dari 48 bayi kurang bulan yang dirawat di NICU RSUP Dr. Sardjito pada Oktober 2024–Januari 2025, 42 bayi memenuhi kriteria dan secara acak dibagi menjadi dua kelompok perlakuan, yakni 21 bayi menerima nutrisi enteral dan 21 bayi dipuasakan selama transfusi. Karakteristik dasar subjek penelitian homogen ($p>0,05$), dengan sebagian besar subjek laki-laki, rerata berat lahir 1500 gram, usia kehamilan 34 minggu, kadar hematokrit 27,99% dan hemoglobin 9,49 g/dL pada kelompok kontrol, serta hematokrit 28,31% dan hemoglobin 9,79 g/dL pada kelompok intervensi. Tidak terdapat kondisi HsPDA, sedangkan sepsis ditemukan pada 4 subjek intervensi dan 3 subjek kontrol. Rerata nilai rSO₂S dan rSO₂C pada kelompok intervensi maupun kontrol mengalami perubahan yang signifikan dari T0-T4 ($p<0,05$), namun di berbagai waktu pengamatan tidak ada perbedaan signifikan antara kelompok intervensi dan kontrol, termasuk pada nilai SCOR ($p>0,05$). Tidak didapatkan perbedaan yang signifikan pada SpO₂ dan FTOES diantara waktu pengukuran dan antara kelompok kontrol dan intervensi, tetapi pada frekuensi denyut jantung didapatkan perbedaan yang signifikan dari T0-T4 ($p<0,05$). Efek samping berupa muntah (1 subjek intervensi, 2 kontrol) dan residu lambung >30% (4 subjek intervensi, 3 kontrol) terjadi tanpa perbedaan signifikan antar kelompok.

Kesimpulan: Pemberian nutrisi enteral selama transfusi darah tidak berpengaruh signifikan terhadap oksigenasi splanknik.

Kata kunci: Bayi kurang bulan, nutrisi enteral, transfusi darah, saturasi oksigen splanknik, *near-infrared spectroscopy* (NIRS).

ABSTRACT

Objectives: To evaluate regional splanchnic oxygen saturation differences in preterm infants receiving red blood cell transfusions with and without enteral nutrition and examine its impact on clinical outcomes.

Methods: Randomized controlled trial (RCT) experimental design with open-label randomization. The subjects were preterm infants with gestational ages of <37 weeks who underwent red blood cell transfusions. Subjects were divided into two groups: an intervention group receiving enteral nutrition and a control group fasting during transfusion. Tissue oxygenation monitoring was conducted using Near-Infrared Spectroscopy (NIRS) to measure splanchnic regional oxygen saturation (rSO_{2S}), cerebral regional oxygen saturation (rSO_{2C}), and the splanchnic-cerebral oxygenation ratio (SCOR).

Results: Of 48 preterm infants treated in the NICU of RSUP Dr. Sardjito from October 2024 to January 2025, 42 infants met the criteria and were randomly assigned into two treatment groups: 21 infants received enteral nutrition, and 21 infants fasted during transfusion. Baseline characteristics of the study subjects were homogeneous ($p > 0.05$), with the majority being male, an average birth weight of 1500 grams, gestational age of 34 weeks, hematocrit levels of 27.99% and hemoglobin levels of 9.49 g/dL in the control group, and hematocrit levels of 28.31% and hemoglobin levels of 9.79 g/dL in the intervention group. No cases of HsPDA were reported, although sepsis was found in 4 intervention subjects and 3 control subjects. The mean rSO_{2S} and rSO_{2C} values in both groups showed significant changes from T0 to T4 ($p < 0.05$), but no significant differences were found between the intervention and control groups, including SCOR values ($p > 0.05$). There were no significant differences in SpO₂ and FTOES across measurement times and between the control and intervention groups. However, a significant difference was observed in heart rate changes from T0 to T4 ($p < 0.05$). Adverse events, such as vomiting (1 intervention subject, 2 control subjects) and gastric residuals >30% (4 intervention subjects, 3 control subjects), occurred without significant differences between groups.

Conclusion: The provision of enteral nutrition during blood transfusion does not affect splanchnic oxygenation.

Keywords: Preterm infants, enteral nutrition, blood transfusion, splanchnic oxygen saturation, near-infrared spectroscopy (NIRS)