

Tesis

**ANALISIS KADAR HEMOGLOBIN, JUMLAH TROMBOSIT  
DAN KADAR KALSIUM PADA PENDONOR  
AFERESIS TROMBOSIT**



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# ANALISIS KADAR HEMOGLOBIN, JUMLAH TROMBOSIT DAN KADAR KALSIMUM PADA PENDONOR AFERESIS TROMBOSIT

Oleh

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## ABSTRAK

**Latar Belakang:** Prosedur aferesis trombosit adalah metode pengumpulan trombosit dari pendonor dengan menggunakan mesin aferesis. Prosedur aferesis trombosit ini memberikan manfaat besar bagi resipien, namun pada pendonor sering mengalami perubahan fisiologis seperti penurunan hemoglobin, jumlah trombosit, dan kadar kalsium, yang dapat memengaruhi kesehatan pendonor dan menurunkan minat untuk mendonorkan kembali.

**Metode:** Penelitian ini merupakan studi analitik potong lintang prospektif yang melibatkan 40 pendonor aferesis trombosit di Unit Transfusi Darah RS Dr. M. Djamil Padang. Pengukuran kadar hemoglobin, jumlah trombosit, dan kadar kalsium dilakukan sebelum dan 30 menit setelah prosedur aferesis trombosit. Analisis statistik menggunakan uji Wilcoxon Sign Rank dengan nilai  $p < 0.05$  terdapat perbedaan bermakna sebelum dan setelah aferesis trombosit.

**Hasil:** Kadar hemoglobin mengalami penurunan dari median 15,40 (12,6-16,4) g/dL menjadi 14,90 (12,0-16,0) g/dL ( $p < 0,001$ ). Jumlah trombosit turun dari median 257.000 (228.000-365.000)/mm<sup>3</sup> menjadi 177.000 (116.000-324.000)/mm<sup>3</sup> ( $p < 0,001$ ), dan kadar kalsium mengalami penurunan dari median 9,20 (7,90-10,60) mg/dL menjadi 9,15 (7,40-9,90) mg/dL ( $p = 0,015$ ). Sebanyak 35 (87,5%) pendonor aferesis trombosit tidak mengalami efek samping yang merugikan, namun ada 5 (12,5%) pendonor yang mengalami efek samping yang merugikan. Efek samping tersebut berupa 3 pendonor merasakan kesemutan di tangan, 1 pendonor merasakan kesemutan di perioral dan 1 pendonor mengalami hematoma. Efek berat tidak ada.

**Simpulan:** Prosedur aferesis trombosit menyebabkan penurunan kadar hemoglobin, jumlah trombosit dan kadar kalsium dengan rerata penurunan Hb 0,5 g/dL, rerata penurunan trombosit 80.000/mm<sup>3</sup>, rerata penurunan kadar kalsium 0,05 mg/dL. Upaya preventif seperti pemberian suplemen kalsium saat prosedur dianjurkan untuk mengurangi efek samping, serta perlu dilakukan pemeriksaan kadar kalsium sebelum donasi.

**Kata kunci:** Donor *apheresis* trombosit, hemoglobin, jumlah trombosit, kalsium

**ANALYSIS OF HEMOGLOBIN LEVELS, PLATELET COUNT  
AND CALSIUM LEVELS IN PLATELET  
APHERESIS DONORS**

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**ABSTRACT**

**Background:** Platelet apheresis is a method of collecting platelets from donors using an apheresis machine. This procedure offers significant benefits to recipients; however, donors often experience physiological changes such as reductions in hemoglobin, platelet count, and calcium levels, which may affect donor health and reduce their willingness to donate again.

**Methods:** This study is a prospective cross-sectional analytical study involving 40 platelet apheresis donors at the Blood Transfusion Unit of Dr. M. Djamil Hospital, Padang. Measurements of hemoglobin levels, platelet count, and calcium levels were taken before and 30 minutes after the platelet apheresis procedure. Statistical analysis was performed using the Wilcoxon Sign Rank test, with a  $p$ -value  $>0.05$  indicating no significant differences before and after the procedure.

**Results:** Hemoglobin levels decreased from a median of 15.40 (12.6-16.4) g/dL to 14.90 (12.0-16.0) g/dL ( $p < 0.001$ ). Platelet counts declined from a median of 257,000 (228,000-365,000)/mm<sup>3</sup> to 177,000 (116,000-324,000)/mm<sup>3</sup> ( $p < 0.001$ ), and calcium levels dropped from a median of 9.20 (7.90-10.60) mg/dL to 9.15 (7.40-9.90) mg/dL ( $p = 0.015$ ). A total of 35 (87.5%) platelet apheresis donors experienced no adverse effects, whereas 5 (12.5%) donors reported side effects. These side effects included tingling in the hands in 3 donors, tingling around the mouth in 1 donor, and hematoma in 1 donor. No severe adverse effects were observed.

**Conclusion:** The platelet apheresis procedure resulted in reductions in hemoglobin levels, platelet count, and calcium levels, with an average hemoglobin decrease of 0.5 g/dL, platelet decrease of 80,000/mm<sup>3</sup>, and calcium decrease of 0.05 mg/dL. Preventive measures such as calcium supplementation during the procedure are recommended to mitigate side effects, along with pre-donation calcium level assessments

**Key words:** platelet apheresis donors, hemoglobin, platelet count, calcium