

ABSTRACT

The Analysis of Mean Platelet Volume in Packed Red Cell Before and After Leucodepletion in UPTD RSUP Dr. Sardjito Yogyakarta

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Background. Allogenic blood transfusions can results either active alloimmunization or immunologic unresponsiveness. By using leucodepletion, the white blood cell concentration will reduce and resulting less adverse transfusion reactions. Leucodepletion process may affect other blood components such as platelet count. Platelet as a “contaminant” component in PRC may associate with the plaque formation. Inflammatory and mitogenic mediators are increased due to the platelet activation. As one of platelet index, MPV can define the platelet activation. Mean platelet volume is a measure of the average size of platelet in the blood. Increasing MPV may be associated with the increasing of platelet activation.

Objective. To describe the mean platelet volume in packed red cell before and after the leucodepletion process.

Method. This research used the cross sectional study to analyse the mean platelet volume in packed red cell after leucodepletion process in UPTD RSUP Dr. Sardjito Yogyakarta. Based on Gay and Diehl (1992) and Roscoe (1975) stated that the minimum sample for research is 30 so the data could be a representative. The inclusion criteria is pre-storage packed red cell obtained from the blood donor in UPTD RSUP Dr. Sardjito Yogyakarta. The exclusion criteria are hemolysis PRC and damaged packed red cell bag.

Results. The median of pre-leucodepletion in MPV was found 10.1. The median of post-leucodepletion in MPV could not be calculated. The median of pre-leucodepletion in platelet was found 329. The median of post-leucodepletion in platelet was found 7.5.

Conclusion. There are nine subjects (15%) who have higher reference normal of MPV in PRC before the leucodepletion process. There are no available data to MPV in PRC after the leucodepletion process. This could be happen due to the significantly decrease of platelet count and limitation of the hematology analyser.

Keywords. Mean Platelet Volume, Packed Red Cell, Leucodepletion

ABSTRAK

Analisa Leukodepleksi pada *Mean Platelete Volume* dalam *Packed Red Cell* di UPTD RSUP Dr. Sardjito Yogyakarta

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Latar Belakang. Transfusi darah alogenik dapat menyebabkan alloimunisasi aktif atau respon imunologis. Dengan menggunakan leukodepleksi, konsentrasi sel darah putih akan berkurang dan menyebabkan berkurangnya reaksi transfusi yang merugikan. Proses leukodepleksi dapat mempengaruhi komponen darah lain seperti jumlah platelet. Trombosit sebagai komponen "kontaminan" di PRC dapat menyebabkan pembentukan plak pada pembuluh darah. Mediator inflamasi dan mitogenik dapat meningkat dikarenakan aktivasi trombosit. Sebagai salah satu indeks trombosit, MPV dapat menentukan aktivasi trombosit. *Mean platelet volume* merupakan ukuran rata-rata trombosit dalam darah. Peningkatan MPV dapat dikaitkan dengan peningkatan aktivasi trombosit.

Tujuan. Untuk menggambarkan *mean platelet volume* dalam *packed red cell* sebelum dan sesudah proses leukodepleksi.

Metode. Penelitian ini menggunakan studi cross sectional dalam menganalisis perubahan *mean platelet volume* dalam *packed red cell* setelah proses leukodepleksi di UPTD RSUP Dr. Sardjito Yogyakarta.

Hasil. Median pre-leukodepleksi MPV ditemukan 10.1. Median post-leukodepleksi MPV tidak dapat ditemukan. Median pre-leukodepleksi platelet ditemukan 329. Median post-leukodepleksi platelet ditemukan 7,5.

Kesimpulan. Ada sembilan subjek (15%) yang memiliki MPV lebih tinggi daripada referensi di PRC sebelum proses leukodepleksi. Tidak ada data yang tersedia untuk MPV di PRC setelah proses leukodepleksi. Hal ini bisa terjadi karena penurunan jumlah platelet yang signifikan dan keterbatasan penganalisis hematologi

Kata Kunci. *Mean Platelet Volume, Packed Red Cell*, proses leukodepleksi