

## INTISARI

### PENGARUH LEUKOREDUKSI PADA TRANSFUSI PLATELET TERHADAP REAKSI TRANSFUSI DEMAM NON-HEMOLITIK DAN KENAIKAN ANGKA PLATELET

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**Latar belakang:** Sekitar 75% transfusi platelet diberikan kepada pasien hematoonkologi, tidak jarang membutuhkan transfusi berulang. Insidensi FNHTR terjadi pada 30% pada transfusi platelet. Transfusi platelet berulang dapat menimbulkan gagal respon (refraktori platelet). Leukoreduksi diketahui menurunkan kejadian FNHTR dan refraktori platelet.

**Tujuan:** Mengetahui pengaruh pemberian transfusi platelet leukoreduksi terhadap kejadian FNHTR serta angka kenaikan platelet paska transfusi platelet dengan leukoreduksi di RSUP Dr. Sardjito.

**Metode:** Penelitian ini merupakan studi observasional kohort prospektif yang dilakukan di RSUP Dr. Sardjito periode Desember 2019 – April 2020. Subyek penelitian adalah pasien usia  $\geq 18$  tahun yang menderita kelainan hematologi, keganasan hematologi maupun onkologi yang telah menjalani transfusi berulang dalam  $\geq 2$  bulan dan memenuhi indikasi diberikan transfusi platelet. Pasien kemudian dibagi dalam kelompok non-leukoreduksi (transfusi TC standar), dan kelompok leukoreduksi (transfusi TA atau TC dengan filter *bedside*). Dilakukan pemantauan efek samping transfusi hingga 4 jam paska transfusi. Respon kenaikan platelet paska transfusi dinilai 24 jam paska transfusi dengan rumus *platelet increment*. Data dianalisa menggunakan SPSS. Perbedaan dianggap bermakna jika nilai  $p < 0,05$ .

**Hasil Penelitian:** Didapatkan total 167 subyek, dimana 51 subyek mendapat transfusi TC non-leukoreduksi dan 116 subyek mendapat transfusi trombosit leukoreduksi (70 subyek mendapat TA, 46 subyek mendapat TC dengan filter *bedside*). Pasien dengan leukoreduksi memiliki angka kejadian FNHTR yang lebih rendah dibanding pasien non-leukoreduksi (2,58% vs 13,7%;  $p = 0,01$ ) dan proporsi *platelet increment* baik yang lebih tinggi (58,6% vs 41,2%;  $p = 0,04$ ). Transfusi TA secara signifikan memperbaiki kejadian FNHTR dan *platelet increment* dibanding TC non-leukoreduksi (1,4% vs 13,7%;  $p = 0,01$  dan 64,2% vs 41,2%;  $p = 0,02$ ).

**Kesimpulan:** Transfusi platelet dengan leukoreduksi menurunkan kejadian FNHTR dan menghasilkan respon kenaikan platelet paska transfusi yang lebih baik.

**Kata kunci:** leukoreduksi, platelet, FNHTR, *platelet increment*

## ABSTRACT

### THE EFFECT OF LEUKOREDUCTION ON PLATELET TRANSFUSION IN THE RATE OF FEBRILE NON-HEMOLYTIC TRANSFUSION REACTION AND PLATELET RESPONSE

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**Background:** About 75% of platelet transfusions are given to hematooncologic patients, in which multiple transfusions are frequently required. FNHTR approximately occurred in 30% of platelet transfusion. Multiple transfusion could lead to post-transfusion response failure (platelet refractoriness). Leukoreduction has been known to reduce the rate of FNHTR and platelet refractoriness.

**Objective:** To evaluate the effect of leukoreduction on platelet transfusion in the rate of FNHTR and post-transfusion platelet response at Sardjito General Hospital.

**Method:** This prospective cohort observational study was conducted at Dr. Sardjito General Hospital from December 2019 - April 2020. Subjects were patients aged  $\geq 18$  years with hematological disorders, hematology or oncology malignancies who had multiple transfusions for  $\geq 2$  months and met the indications for platelet transfusion. Subjects were divided into non-leukoreduction groups (standard TC transfusions), and leukoreduction group (TA or TC with bedside filter transfusions). Transfusion reactions were monitored for up to 4 hours after transfusions. Post-transfusion platelet responses were evaluated 24 hours post-transfusion using platelet increment formula. Data was analyzed using SPSS. P value of  $<0.05$  was considered significant.

**Results:** A total of 167 subjects were included, in which 51 subjects received non-leukoreduced TC transfusions and 116 subjects received leukoreduced platelet transfusion (70 subjects received TA, 46 subjects received TC with bedside filter). Subjects with leukoreduction had lower FNHTR rate than non-leukoreduction subjects (2,58% vs 13,7%;  $p = 0,01$ ) and higher improved platelet increment rate (58,6% vs 41,2%;  $p = 0,04$ ). TA transfusions significantly improved FNHTR and platelet increment compared to standard TC transfusions (1,4% vs 13,7%;  $p = 0,01$  and 64,2% vs 41,2%;  $p = 0,02$ ).

**Conclusion:** Leukoreduction in platelet transfusion improved rate of FNHTR and platelet response.

**Keywords:** leukoreduction, platelet, FNHTR, platelet response