

## INTISARI

### HUBUNGAN ANTARA ANGKA *PLATELET (PLT)*, *PLATELETCRIT (PCT)*, DAN *MEAN PLATELET VOLUME (MPV)* DENGAN TINGKAT KEPARAHAN KOLITIS ULSERATIF BERDASARKAN KRITERIA *TRUELOVE WITTS*

Sisca Wulandari<sup>1</sup>, Neneng Ratnasari<sup>2</sup>, Fahmi Indrarti<sup>2</sup>  
PPDS Ilmu Penyakit Dalam<sup>1</sup>, Subbagian Gastro Entero Hepatologi<sup>2</sup>  
Fakultas Kedokteran, Kesehatan Masyarakat dan Keperawatan UGM/  
RSUP Dr. Sardjito Yogyakarta

**Latar Belakang:** Pada kolitis ulseratif terjadi abnormalitas respon imun yang melibatkan *platelet*. Perubahan jumlah, ukuran, dan kepadatan *platelet* pada kolitis ulseratif mungkin merupakan indikator aktivitas penyakit, walaupun belum sepenuhnya dipahami.

**Tujuan Penelitian:** Mengetahui hubungan antara angka *platelet (PLT)*, *plateletcrit (PCT)*, dan *mean platelet volume (MPV)* dengan tingkat keparahan kolitis ulseratif.

**Metode Penelitian:** Penelitian ini merupakan studi retrospektif yang dilaksanakan menggunakan metode *cross sectional* dengan *consecutive sampling* dalam kurun waktu Juli 2020 - Juli 2021. Subjek penelitian adalah penderita kolitis ulseratif yang menjalani rawat inap atau rawat jalan di RSUP Dr. Sardjito yang memenuhi kriteria inklusi dan kriteria eksklusi. Angka *platelet (PLT)*, *plateletcrit (PCT)*, dan *mean platelet volume (MPV)* didapatkan dari laboratorium patologi klinik. Diagnosis kolitis ulseratif berdasarkan klinis, kolonoskopi, dan biopsi mukosa kolon. Penilaian keparahan penyakit kolitis ulseratif menggunakan kriteria *Truelove Witts*. Analisis menggunakan program komputer dengan nilai  $p < 0,05$  dan  $z > 1,96$  dianggap bermakna secara statistik.

**Hasil Penelitian:** Terdapat 47 subyek penelitian dengan rata-rata usia  $53,60 \pm 11,79$ . Jumlah pasien laki-laki 26 orang (55,3%) dan perempuan 21 orang (44,7%). Tingkat keparahan kolitis ulseratif dibagi menjadi tiga kelompok dengan jumlah pasien kolitis ulseratif ringan 21 orang (44,7 %), sedang 9 orang (19,1 %), dan berat 17 orang (36,2 %). *Mean* angka *platelet* pada kelompok tingkat keparahan ringan  $243857,14/\mu\text{L} \pm 65504,42$ , sedang  $313555,56/\mu\text{L} \pm 86830,45$ , dan berat  $338470,58/\mu\text{L} \pm 107343$ . Analisis menggunakan *paired sample proportion test* didapatkan hubungan antara angka *platelet* dengan tingkat keparahan kolitis ulseratif secara bermakna ( $p < 0,001$ ;  $z = -4,000$ ). *Median* angka *plateletcrit* pada kelompok tingkat keparahan ringan 0,17% (0,13 – 0,31), sedang 0,18% (0,15 – 0,42), dan berat 0,21% (0,13 – 0,48). *Median* angka *MPV* pada kelompok tingkat keparahan ringan 7,40 fL (5,40 – 13,60), sedang 6,20 fL (4,60 – 10,20), dan berat 6,70 fL (4,30 – 11,10). Analisis menggunakan *related sample Wilcoxon signed rank test* didapatkan hubungan bermakna antara angka *plateletcrit* dengan tingkat keparahan kolitis ulseratif ( $p < 0,001$ ;  $z = -5,968$ ) dan angka *MPV* dengan tingkat keparahan kolitis ulseratif ( $p < 0,001$ ;  $z = 5,969$ ).

**Kesimpulan:** Terdapat hubungan antara angka *platelet*, *plateletcrit*, dan *mean platelet volume* dengan tingkat keparahan kolitis ulseratif secara bermakna.

**Kata kunci:** kolitis ulseratif, *platelet*, *plateletcrit*, *mean platelet volume*.

## ABSTRACT

### ASSOCIATION BETWEEN PLATELET COUNT (PLT), PLATELETCRIT (PCT), AND MEAN PLATELET VOLUME (MPV) WITH THE SEVERITY OF ULSERATIVE COLITIS BASED ON TRUELOVE WITTS CRITERIA

Sisca Wulandari<sup>1</sup>, Neneng Ratnasari<sup>2</sup>, Fahmi Indrarti<sup>2</sup>

Resident of Internal Medicine<sup>1</sup>, Staff of Gastro Entero Hepatology Division<sup>2</sup>

Faculty of Medicine, Public Health and Nursing UGM/

RSUP Dr. Sardjito Yogyakarta

**Background:** In ulcerative colitis there is an abnormal immune response involving platelets. Changes in platelet count, size, and density in ulcerative colitis may be an indicator of disease activity, although they are not fully understood.

**Objectives:** To determine the association between platelet count (PLT), plateletcrit (PCT), and mean platelet volume (MPV) with the severity of ulcerative colitis.

**Methods:** This is a retrospective, cross sectional study with consecutive sampling in the period July 2020 - July 2021. The research subjects were ulcerative colitis inpatient or outpatient at Dr. Sardjito Hospital who met the inclusion and exclusion criteria. Platelet count (PLT), plateletcrit (PCT), and mean platelet volume (MPV) were obtained from the clinical pathology laboratory. Diagnosis of ulcerative colitis was based on clinical, colonoscopy and colonic mucosal biopsy. Ulcerative colitis severity was assessed using the Truelove Witts criteria. Analysis using a computer program with  $p < 0.05$  and  $z > 1.96$  was considered statistically significant.

**Result:** There were 47 research subjects with a mean age of  $53.60 \pm 11.79$ . The number of male and female patients was 26 (55.3%) and 21 (44.7%), respectively. The severity of ulcerative colitis was divided into three groups with the number of patients with mild, moderate, dan severe ulcerative colitis were 21 (44.7%), 9 (19.1%), and 17 (36.2%), respectively. The mean platelet count in the mild, moderate, and severe severity group was  $243857.14/\mu\text{L} \pm 65504.42$ ,  $313555.56/\mu\text{L} \pm 86830.45$ , and  $338470.58/\mu\text{L} \pm 107343$ , respectively. Analysis using the paired sample proportion test found a significant association between platelet count and the severity of ulcerative colitis ( $p < 0.001$ ;  $z = -4.000$ ). The median plateletcrit in the mild, moderate, and severe severity group was 0.17% (0.13 – 0.31), 0.18% (0.15 – 0.42), and 0.21% (0.13 – 0.48), respectively. The median MPV in the mild, moderate, and severity group was 7.40 fL (5.40 – 13.60), 6.20 fL (4.60 – 10.20), and 6.70 fL (4.30 – 11.10), respectively. Analysis using the related sample Wilcoxon signed rank test found a significant association between plateletcrit with the severity of ulcerative colitis ( $p < 0.001$ ;  $z = -5.968$ ) and MPV with the severity of ulcerative colitis ( $p < 0.001$ ;  $z = 5.969$ ).

**Conclusion:** Platelets count, plateletcrit, and mean platelet volume were significantly associated with the severity of ulcerative colitis.

**Keywords:** *ulserative colitis, platelet, plateletcrit, mean platelet volume*