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HUBUNGAN ANTARA PENANDA INFLAMASI DAN ELASTISITAS VASKULAR PADA MAHASISWA PREHIPERTENSI

RINCIAN HALAMAN (xii + 71 halaman, 9 tabel, 9 gambar, 5 lampiran)

ABSTRAK

Tujuan

Hasil penelitian didapatkan 34,7% mahasiswa kedokteran mengalami prehipertensi. Kondisi prehipertensi dapat memicu inflamasi yang pada akhirnya menurunkan elastisitas vaskular. Penelitian ini bertujuan untuk mengetahui hubungan antara penanda inflamasi dan elastisitas vaskular pada mahasiswa prehipertensi.

Metode

Penelitian menggunakan desain *case-control* dan teknik *simple random sampling*. Data karakteristik demografi subjek diambil menggunakan kuesioner, elastisitas vaskular diukur menggunakan *Accelerated Photoplethysmograph (APG) Analyzer SA-3000P,* karakteristik hematologi dianalisis menggunakan *Hematology Analyzer Alinity HQ* dan tekanan darah menggunakan sfigmomanometer *digital.* Subjek terdiri dari 27 orang dengan prehipertensi (kasus) dan 27 orang dengan tekanan darah nomal (kontrol),

Hasil

Pada penelitian didapatkan sebanyak 21 subjek (77,8%) memiliki elastisitas vaskulat sub-optimal. Sebanyak 21 subjek (77,8%) memiliki nilai *neutrophil-to-lymphocyte ratio* (NLR) tinggi dan 19 subjek (70,4%) memiliki nilai *platelet-to-lymphocyte ratio* (PLR) dengan risiko tinggi. Hasil uji *Chi-square* menunjukkan ada hubungan antara penanda inflamasi NLR dan

prehipertensi (p = 0,000; OR = 7,0; CI = 2,3-20,7), tetapi tidak ada hubungan antara PLR dan prehipertensi (p = 0,525). Didapatkan pula hubungan antara elastisitas vaskular dan prehipertensi (p = 0,000; OR = 5,2; CI = 2,0-13,2).

Kesimpulan

Subjek dengan prehipertensi mempunyai nilai NLR 7 kali lebih tinggi dibandingkan subjek dengan tekanan darah normal. Subjek dengan elastisitas vaskular sub-optimal 5,2 kali lebih berisiko untuk mengalami prehipertensi dibandingkan dengan kategori normal dan optimal.

Daftar Pustaka **:** 57 (2015-2024)

Kata Kunci **:** Elastisitas Vaskular, Mahasiswa Kedokteran*, neutrophil-to-lymphocyte ratio, platelet-to-lymphocyte ratio*, Prehipertensi

FACULTY OF MEDICINE

UNIVERSITY PEMBANGUNAN NASIONAL VETERAN JAKARTA

Undergraduate Thesis, January 2025

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THE RELATIONSHIP BETWEEN INFLAMMATORY MARKERS AND VASCULAR ELASTICITY IN PREHYPERTENSIVE MEDICAL STUDENTS

PAGE DETAIL (xii + 71 pages, 9 tables, 9 pictures, 5 appendices)

ABSTRACT

Objective

The study found that 34.7% of medical students experienced prehypertension. Prehypertension has the potential to trigger inflammation, which may subsequently reduce vascular elasticity. This study aims to investigate the relationship between inflammatory markers and vascular elasticity in prehypertensive medical students.

Methods

This study used a case-control design and a simple random sampling technique. The subjects' demographic characteristics were collected using a questionnaire. Vascular elasticity was measured using the Accelerated Photoplethysmograph (APG) Analyzer SA-3000P. Hematologic parameters were analyzed with the Hematology Analyzer Alinity HQ, while blood pressure was measured using a Digital Sfigmomanometer. The subjects comprised 27 prehypertensive subjects (cases) and 27 normotensive subjects (controls).

Results

The study found that 21 subjects (77.8%) had suboptimal vascular elasticity. A total of 21 subjects (77.8%) had a high neutrophil-to-lymphocyte ratio (NLR) value, and 19 subjects (70.4%) had a high-risk platelet-to-lymphocyte ratio (PLR) value. The Chi-square test indicated a significant relationship between the inflammatory marker NLR and vascular elasticity ($p = 0.000$; OR = 7.0; CI = 2.3-20.7). However, no relationship was found between PLR and vascular elasticity ($p = 0.525$). A significant relationship was also identified between vascular elasticity and prehypertension ($p = 0.000$; OR = 5.2; CI = 2.0-13.2).

Conclusion

Subjects with prehypertension exhibited NLR values that were seven times higher than those with normal blood pressure. Additionally, subjects with suboptimal vascular elasticity were 5.2 times more likely to develop prehypertension than those with normal or optimal vascular elasticity.