

**HUBUNGAN KADAR VITAMIN D [25(OH)D<sub>3</sub>] DENGAN  
NILAI *NEUTROPHYL LYMPHOCYTE RATIO* (NLR) DAN  
KADAR *C-REACTIVE PROTEIN* (CRP)  
PADA PASIEN KANKER SERVIKS**

Nurlailah Mi'raj<sup>1</sup>, I. Edward KSL<sup>2</sup>, Muji Rahayu<sup>2</sup>

<sup>1</sup>PPDS-1 Patologi Klinis, Fakultas Kedokteran Universitas Diponegoro, Semarang

<sup>2</sup>Patologi Klinis, Fakultas Kedokteran Universitas Diponegoro, Semarang

**ABSTRAK**

**Latar belakang:** Secara global kanker serviks merupakan keganasan terbanyak pada wanita usia produktif yang menjadi ancaman serius dan penyebab kematian. Kadar vitamin D [25(OH)D<sub>3</sub>] saat ini banyak dikaitkan dengan petanda inflamasi klinis seperti *neutrophil-lymphocyte ratio* (NLR) dan *C-reactive protein* (CRP) serta digunakan untuk melihat perkembangan kanker serviks.

**Tujuan:** Membuktikan adanya hubungan kadar vitamin D [25(OH)D<sub>3</sub>] dengan nilai NLR dan kadar CRP pada pasien kanker serviks.

**Metode:** Penelitian observasional analitik dengan pendekatan belah lintang di RSUP Dr. Kariadi Semarang pada bulan Januari – Maret 2024. Pengukuran kadar vitamin D [25(OH)D<sub>3</sub>] menggunakan metode *enzyme linked immunosorbent assay* (ELISA). Nilai NLR dihitung secara manual. Kadar CRP diperiksa dengan alat ADVIA *centaur* menggunakan prinsip *chemiluminescence* dan dikombinasikan dengan teknologi *immunoassay*. Uji statistik menggunakan uji korelasi *Pearson*.

**Hasil:** Penelitian dilakukan terhadap 40 pasien kanker serviks pada usia 35-60 tahun. Hasil mean±SD kadar vitamin D [25(OH)D<sub>3</sub>], nilai NLR dan kadar CRP berurutan adalah 12,0±5,5 ng/ml; 5,0±1,2; 5,5±2,0 mg/dL. Uji hubungan antara kadar vitamin D [25(OH)D<sub>3</sub>] dengan nilai NLR dan kadar CRP berurutan didapatkan ( $p=0,036$ ;  $r=-0,333$ ) dan CRP ( $p=0,000$ ;  $r=-0,588$ ).

**Simpulan:** Terdapat hubungan negatif lemah antara kadar vitamin D [25(OH)D<sub>3</sub>] dengan nilai NLR. Terdapat hubungan negatif sedang antara kadar vitamin D [25(OH)D<sub>3</sub>] dengan kadar CRP.

**Kata Kunci:** Kanker serviks, vitamin D [25(OH)D<sub>3</sub>], NLR, CRP

**CORRELATION OF VITAMIN D [25(OH)D<sub>3</sub>] LEVELS WITH NEUTROPHIL  
LYMPHOCYTE RATIO (NLR) VALUES AND  
C-REACTIVE PROTEIN (CRP) LEVELS  
IN CERVICAL CANCER PATIENTS**

Nurlailah Mi'raj<sup>1</sup>, I Edward KSL<sup>2</sup>, Muji Rahayu<sup>2</sup>

<sup>1</sup>Resident of Clinical Pathology, Faculty of Medicine, Diponegoro University, Semarang

<sup>2</sup>Staff of Clinical Pathology, Faculty of Medicine, Diponegoro University, Semarang

**ABSTRACT**

**Background:** Globally, cervical cancer is the most malignant in women of productive age who are a serious threat and cause of death. Vitamin D [25(OH)D<sub>3</sub>] levels are currently associated with clinical inflammatory markers such as C-reactive protein (CRP) and neutrophil-lymphocyte ratio (NLR). They are used to monitor the development of cervical cancer.

**Objective:** Prove the correlation of vitamin D [25(OH)D<sub>3</sub>] levels with NLR values and CRP levels in cervical cancer patients.

**Method:** Analytical observational study with a cross-sectional approach at Dr. Kariadi Hospital Semarang in January – March 2024. Measurement of vitamin D [25(OH)D<sub>3</sub>] levels using enzyme-linked immunosorbent assay (ELISA) method. The NLR value was calculated manually. CRP levels were checked with the ADVIA centaur device using the principle of chemiluminescence and combined with immunoassay technology. Statistical tests used the Pearson correlation test.

**Results:** The study was conducted on 40 cervical cancer patients aged 35-60. The mean±SD results of vitamin D [25(OH)D<sub>3</sub>] levels, NLR values, and CRP levels were 12.0±5.5 ng/ml; 5.0±1.2; 5.5±2.0 mg/dL. The correlation tests between vitamin D [25(OH)D<sub>3</sub>] levels with NLR values and CRP levels were sequentially obtained ( $p=0.036$ ;  $r=-0.333$ ) and CRP ( $p=0.000$ ;  $r=-0.588$ ).

**Conclusion:** Vitamin D [25(OH)D<sub>3</sub>] levels and NLR values showed a weak negative correlation. A moderate negative correlation exists between vitamin D [25(OH)D<sub>3</sub>] levels and CRP levels.

**Keywords:** Cervical cancer, vitamin D [25(OH)D<sub>3</sub>], NLR, CRP