

ABSTRAK

**HUBUNGAN RASIO NEUTROFIL/LIMFOSIT DAN FAAL PARU
PADA PEKERJA PETERNAKAN AYAM DI DESA
SURUHWADANG KECAMATAN KADEMANGAN KABUPATEN
BLITAR**

Latar Belakang

Pekerja peternakan ayam berisiko tinggi terhadap pajanan dengan partikel organik atau bahan kimia berbahaya yang ada di lingkungan kerja. *Rasio Neutrofil/Limfosit* mencerminkan keseimbangan respons imun nonspesifik (*neutrofil*) dan respons imun spesifik (*limfosit*) terhadap antigen atau *eksposure* yang masuk ke dalam tubuh manusia. Hasil akhir yang buruk akibat peningkatan *Rasio Neutrofil/Limfosit* berhubungan dengan kerusakan jaringan dan kegagalan fungsi organ, termasuk gangguan faal paru. Penelitian ini bertujuan untuk menganalisis hubungan *Rasio Neutrofil/Limfosit* dan faal paru pada pekerja peternakan ayam.

Metode

Penelitian bersifat *analitik observasional* dengan desain *cross sectional*. Sampel penelitian adalah pekerja peternakan ayam di Desa Suruhwadang Kecamatan Kademangan Kabupaten Blitar dan telah memenuhi kriteria inklusi. Semua sampel penelitian dilakukan pemeriksaan darah tepi dan pengukuran faal paru. Hubungan *Rasio Neutrofil/Limfosit* dan faal paru dianalisis secara statistik dengan *Uji Korelasi Spearman*.

Hasil

Didapatkan sebanyak 20 sampel pekerja peternakan ayam yang memenuhi kriteria inklusi. *Rasio FEV1/FVC* tidak memiliki hubungan yang bermakna dengan *Rasio Neutrofil/Limfosit* ($p=0,658$, $r=-0,105$). *Rasio FEV1/FVC* didapatkan berhubungan secara bermakna dengan durasi kerja per hari ($p=0,001$, $r=0,694$), kadar *eosinofil* darah ($p=0,017$, $r=0,527$), dan kadar *neutrofil* darah ($p=0,006$, $R=0,596$). Kadar *limfosit* darah didapatkan berhubungan secara bermakna dengan FEV1 ($p=0,044$, $r=0,454$).

Kesimpulan

Rasio FEV1/FVC didapatkan berhubungan secara bermakna dengan durasi kerja per hari, kadar *eosinofil* darah, dan kadar *neutrofil* darah. FEV1 didapatkan berhubungan secara bermakna dengan kadar *limfosit* darah. *Rasio Neutrofil/Limfosit* tidak memiliki hubungan yang bermakna dengan *Rasio FEV1/FVC*.

Kata kunci: *Rasio Neutrofil/Limfosit*, faal paru, pekerja peternakan ayam, *Rasio FEV1/FVC*, partikel organik

ABSTRACT

**CORRELATION BETWEEN *NEUTROPHIL TO LYMPHOCYTE RATIO*
AND LUNG FUNCTION TESTS AMONG CHICKEN FARMING
WORKERS AT SURUHWADANG VILLAGE OF SUB-DISTRICT
KADEMANGAN REGENCY OF BLITAR**

Background

Chicken farming workers were in high risk to noxious organic particle or chemical compound exposure at the workplace. Balance of the *innate immune response (neutrophil)* and *adaptive immune response (lymphocyte)* facing *antigen* or exposure entering into human body was reflected by *Neutrophil to Lymphocyte Ratio*. Worst outcome of *Neutrophil to Lymphocyte Ratio* correlated to tissue damage and organ failure, include lung function disturbance. Aim of this study was that to analyze correlation between *Neutrophil to Lymphocyte Ratio* and lung function test among chicken farming workers.

Methods

Observational analytic with cross-sectional design was used in this study. Sample was chicken farming workers at Suruhwadang village of Sub-District Kademangan Regency of Blitar whose fulfilled *inclusion criteria*. All of the sample was examined for peripheral blood test and lung function test. *Neutrophil to Lymphocyte Ratio* and lung function then will be analyzed statistically with *Spearman's Correlation Test*.

Results

There were 20 samples that fulfilled inclusion criteria in this study. FEV1 to FVC *Ratio* didn't significantly correlate with *Neutrophil to Lymphocyte Ratio* ($p=0,658$, $r=-0,105$). FEV1 to FVC *Ratio* significantly correlated with working duration per day ($p=0,001$, $r=0,694$), blood *eosinophil* ($p=0,017$, $r=0,527$), and blood *neutrophil* ($p=0,006$, $R=0,596$). Blood *lymphocyte* significantly correlated with FEV1 ($p=0,044$, $r=0,454$).

Conclusion

FEV1 to FVC *Ratio* were significantly correlated with working duration every 24 hours, blood *eosinophil* level, and blood *neutrophil* level. FEV1 was significantly correlated with blood *lymphocyte* level. *Neutrophil to Lymphocyte Ratio* was not significantly correlated with FEV1 to FVC *Ratio*.

Keywords : *Neutrophil to Lymphocyte Ratio*, lung function test, chicken farming workers, FEV1 to FVC *Ratio*, organic particle