

PERBEDAAN KADAR C-REACTIVE PROTEIN BERDASARKAN KEBIASAAN MEROKOK PADA LAKI-LAKI USIA PRODUKTIF

ABSTRAK

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Latar Belakang: Kebiasaan merokok sudah menjadi gaya hidup dan kebiasaan masyarakat di dunia termasuk Indonesia. Berdasarkan Riskesdas 2013, perilaku merokok di Indonesia mengalami peningkatan tiap tahunnya dan banyak terjadi pada laki-laki dibandingkan perempuan dengan usia produktif. Paparan bahan karsinogenik pada rokok akan berdampak pada kerusakan jaringan yang merangsang terjadinya proses inflamasi. Inflamasi berhubungan dengan penyakit kronis seperti penyakit kardiovaskuler, sindrom metabolik, diabetes melitus, kanker, dan stroke. Selain itu adanya inflamasi dapat menyebabkan keterbatasan intervensi gizi dan malnutrisi. Untuk mendeteksi adanya inflamasi dapat dilakukan pemeriksaan penanda inflamasi seperti *C-reactive protein* (CRP). Proses inflamasi berjalan seiring dengan adanya peningkatan kadar CRP darah.

Tujuan Penelitian: Mengetahui perbedaan kadar CRP berdasarkan kebiasaan merokok pada laki-laki usia produktif.

Metode Penelitian: Desain penelitian ini adalah *nested case control* dengan teknik pengambilan subyek penelitian, yaitu *purposive sampling*. Subyek penelitian berjumlah 69 orang laki-laki berusia 18-64 tahun yang dibagi dalam dua kelompok, yaitu kelompok perokok sebanyak 38 orang, dan kelompok bukan perokok sebanyak 31 orang. Pemeriksaan kadar CRP dilakukan dengan metode *high sensitivity C-Reactive Protein Enzyme-Linked Immunosorbent Assay* (hsCRP ELISA). Analisa data menggunakan uji normalitas *Kolmogorov-Smirnov* dan jika data terdistribusi normal dilanjutkan dengan uji perbedaan *Independent T-test* sedangkan jika data tidak terdistribusi normal dilanjutkan dengan uji Mann-Whitney, selain itu dilakukan uji *Chi-square* untuk data variabel nominal ($\alpha=0,05$).

Hasil Penelitian: Hasil penelitian menunjukkan terdapat perbedaan kadar CRP yang bermakna antara kelompok perokok dan bukan perokok dengan median kadar CRP pada kelompok perokok (3,0 mg/ml) dan kelompok bukan perokok (1,04 mg/ml) ($p \leq 0,05$). Tidak ditemukan adanya perbedaan kadar CRP berdasarkan usia dan perokok pasif (di rumah, di tempat kerja dan sejak anak-anak sampai remaja) ($p > 0,05$) pada kedua kelompok. Selain itu, pada kelompok perokok menunjukkan tidak terdapat perbedaan kadar CRP berdasarkan jumlah batang rokok yang dikonsumsi sehari, lama merokok dan *pack-years* ($p > 0,05$).

Kesimpulan: Terdapat perbedaan kadar CRP yang bermakna antara kelompok perokok dan bukan perokok, namun tidak ditemukan perbedaan kadar CRP berdasarkan usia dan perokok pasif pada kedua kelompok. Selain itu, tidak ditemukan perbedaan kadar CRP berdasarkan jumlah batang rokok yang dikonsumsi sehari, lama merokok dan *pack-years* pada kelompok perokok.

Kata Kunci: *C-reactive protein*, kebiasaan merokok, usia produktif

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THE DIFFERENCES OF C-REACTIVE PROTEIN LEVELS BASED ON SMOKING HABITS IN MEN OF PRODUCTIVE AGE

ABSTRACT

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Background: Currently, cigarette smoking had become lifestyle and habits of people in the world, including Indonesia. According to Riskesdas 2013, cigarette consumption in Indonesia rise constantly every year and more common in men than women of productive age. Exposure to carcinogenic substances within cigarettes will result in tissue damage that stimulates the inflammatory process. Inflammation associated with chronic diseases such as cardiovascular disease, metabolic syndrome, diabetes mellitus, cancer, and stroke. Besides the presence of inflammation can cause limitations of nutritional interventions and malnutrition. To detect the presence of inflammation can be examined inflammatory markers such as C-reactive protein (CRP). Inflammatory process runs with elevated CRP levels in blood.

Objective: To identify the differences of CRP levels based on smoking habits in men of productive age.

Methods: This study is a nested case control with subject were selected using purposive sampling. The subject of this study is 69 men aged 18-64 years were divided into two groups, smokers were 38 subjects, and a group of non-smoker were 31 subjects. CRP concentrations were measured using high sensitivity C-Reactive Protein Enzyme-Linked Immunosorbent Assay (hsCRP ELISA). Data were analyzed using the Kolmogorov-Smirnov normality test, followed by Independent T-test if the data is normally distributed or Mann-Whitney test if the data were not normally distributed, besides Chi-square test for nominal variable data ($\alpha=0,05$).

Results: The results of this study showed that there were significant differences in CRP levels between groups of smokers and group of non-smokers with median CRP levels in the group of smokers (3.0 mg/ml) and a group of nonsmokers (1.04 mg/ml) ($p \leq 0.05$). There were no differences in CRP levels based on age and passive smokers (at home, at workplace and from childhood to adolescence ($p > 0.05$)) in both groups. Additionally, in the group of smokers showed no difference CRP levels based on the number of cigarettes consumed per day, duration of smoking and pack-years ($p > 0.05$).

Conclusion: There were significant differences in CRP levels between groups of smokers and nonsmokers, but there were no differences in CRP levels based on age and CRP levels of passive smoking in both groups. In addition, there were no differences in CRP levels based on the number of cigarettes consumed per day, duration of smoking, and pack-years in the group of smokers.

Keyword: C-reactive protein, cigarette smoking, productive age

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