

Hubungan antara kadar myeloperoksidase dengan plak vulnerable yang ditandai dengan napkin ring sign pada pasien angina pectoris stabil = Association between myeloperoksidase level and vulnerable plaque marked with napkin ring sign in stable angina pectoris

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Abstrak

[ABSTRAK

Latar belakang. Angka kejadian akut kardiovaskular diperkirakan akan semakin meningkat. Pasien dengan Angina APS dapat berkembang menjadi Sindroma Koroner Akut (SKA). Konsep proses inflamasi dan stress oksidatif berperan terhadap patogenesis atherosklerosis. Radikal bebas seperti reactive oxygen atau nitrogen species, dan HOCL (hypochlorous acid) dapat mengakibatkan kerapuhan plak. HOCL merupakan Reactive Oxygen Species (ROS) kuat yang menyebabkan ketidakstabilan plak sehingga mudah ruptur. Plak yang mudah ruptur disebut plak vulnerable. HOCL adalah substrat yang dihasilkan oleh myeloperoksidase (MPO). Studi histopatologi plak vulnerable menilai ukuran pusat nekrotik adalah prediktor kuat terjadinya ruptur plak (OR 0.35; P <0.05), dan (OR 2.0; P <0.02). CT angiografi koroner adalah suatu modalitas pencitraan non invasif yang mampu memvisualisasi morfologi plak vulnerable salah satunya dengan mengidentifikasi adanya Napkin Ring Sign (NRS). NRS sangat spesifik untuk menilai pusat nekrotik. Studi ini bertujuan melihat hubungan MPO dengan plak vulnerable yang dinilai dengan Napkin Ring Sign pada pasien angina pectoris stabil.

Metode. Penelitian ini adalah studi potong lintang yang dilakukan di Pusat Jantung Nasional Harapan Kita dari periode Juni ? November 2014. Studi dilakukan pada 41 subyek, pada pasien dengan angina pectoris stabil, jumlah laki ? laki sebanyak 32 orang (78%) dan perempuan 9 orang (22%), Pengambilan sampel secara konsekutif. Pengukuran kadar MPO dilakukan dengan menggunakan colorimetri assay. Pemeriksaan CT angiografi koroner dilakukan untuk mengidentifikasi NRS. Analisa statistik untuk mencari hubungan antara kadar MPO dengan plak vulnerable yang ditandai dengan NRS pada pemeriksaan CT angiografi koroner.

Hasil. Kadar MPO (nmol) pada pasien dengan positif NRS lebih tinggi dibandingkan yang negatif $124,371 \pm 15,324$ vs $105,206 \pm 18,335$, aktivitas MPO (milliunit/mL) $829,136 \pm 102,157$ vs $701,371 \pm 122,235$. Analisa bivariat erdapat hubungan yang bermakna antara kadar MPO dengan NRS p 0,002, IK 95% 2,3,0 - 39,9. Dari multivariat regresi logistik didapatkan kadar MPO > 117,2 (median), memiliki OR 9,6 (IK 95% 2,3 -39) dengan p 0,002. Setelah dilakukan penyesuaian dengan faktor resiko, pada analisa multivariat regresi logistik, didapatkan OR 20,3 (IK 95% 3,1-31,7) dengan p 0,002.

Kesimpulan. Kadar MPO memiliki hubungan yang bermakna dengan plak vulnerable yang ditandai dengan temuan NRS pada CT angiografi koroner pada pasien dengan APS.

Kata kunci : atherosklerosis, plak vulnerable, myeloperoksidase, napkin ring sign.

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ABSTRACT

Background. Coronary Heart Disease (CHD) is still the major health problem in worldwide. Atherosclerosis is a chronic inflammatory process where oxidative damage play a role in atherosclerosis. Overexpression of Reactive Oxygen Species (ROS) could be detrimental and weaken the plaque. This type of plaque is often referred to as vulnerable plaque. Reactive oxygen or nitrogen species, and HOCL (hypochlorous acid) responsible for plaque vulnerability leading to Acute Coronary Syndrome. HOCL is a substrat of Myeloperoxidase (MPO). MPO is a member of the heme peroxidase superfamily, generates reactive oxidants contributes to plaque vulnerability. Coronary Computed Tomography Angiography (CCTA) is a non invasive modality which able to identify morphology of vulnerable plaque. Napkin-Ring Sign (NRS) has been associated with high-risk plaques in several studies.

Methods. A cross sectional study in 41 patients stable angina pectoris was done. The subjects was taken blood sample and underwent CCTA to evaluate NRS in National Cardiovascular Center Harapan Kita from June to November 2014. Statistical analysis is done to explore the association between MPO and vulnerable plaque marked with NRS in stable angina pectoris.

Results. There was association between MPO level with vulnerable plaque marked with Napkin Ring Sign, p value 0,002, CI 95% 2.3,0 - 39.9. Level of MPO is higher in positif NRS vs non NRS (nmol) 124,371 + 15,324 vs 105,206 + 18,335, activity of MPO (milliunit/mL) 829,136 + 102,157 vs 701,371 + 122,235. Logistic regression analysis showed level of MPO 117,2 nmol (median), OR 9,6 (CI95% 2,3 -39) p value 0,002. After adjustment with confounding factor MPO level 117,2 nmol (median), OR 20,3 (IK 95% 3,1-31,7), p value 0,002.

Conclusion. There was association between Myeloperoxidase level with vulnerable plaque marked with Napkin Ring Sign; **Background.** Coronary Heart Disease (CHD) is still the major health problem in worldwide.

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