

**Hubungan Antara C-Terminal Propeptide of Procollagen Type I dan  
Fibrosis Miokardial yang Dinilai dengan Cardiac Magnetic Resonance  
Pada Pasien Intervensi Koroner Perkutan Primer  
Studi Kasus di RSUP Dr. Kariadi Semarang**

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**ABSTRAK**

**Latar Belakang:** Fibrosis merupakan kontributor utama terjadinya gagal jantung pada pasien sindroma koroner akut dengan elevasi segmen ST (SKA-EST) meskipun telah menjalani intervensi koroner perkutan primer (IKPP). Luas fibrosis dapat dinilai melalui pemeriksaan *late gadolinium enhancement* dari *cardiac magnetic resonance* (LGE-CMR). Proses fibrosis dapat dinilai dengan pemeriksaan *carboxy-terminal propeptide of procollagen type I* (PICP). Namun hingga saat ini belum ada penelitian yang menghubungkan keduanya, sehingga penelitian ini bertujuan untuk mengetahui korelasi antara PICP dan fibrosis miokardial yang dinilai dengan LGE-CMR.

**Metode:** Penelitian ini merupakan penelitian kohort prospektif, melibatkan pasien pasca SKA-EST yang menjalani IKPP yang berhasil. Pasien diperiksa kadar PICP pada hari ke-4 pasca SKA-EST dengan metode ELISA dan diperiksa LGE-CMR antara hari ke-60 sampai 75 pasca SKA-EST. Korelasi antara kadar PICP dan fibrosis miokardial dianalisis dengan uji Pearson.

**Hasil:** Terdapat total 31 subjek penelitian dengan rerata usia  $52 \pm 10$  tahun dengan mayoritas laki-laki (90%). Rerata total waktu iskemik pada penelitian ini  $489 \pm 228$  menit. Lokasi infark terbanyak di area non-anterior (58,1%) dengan 54,8% pasien dilakukan revaskularisasi komplis. Kadar PICP memiliki median 4,37 (0,68-26,68) ng/ml dengan rerata luas fibrosis dari pemeriksaan LGE-CMR adalah  $18,33 \pm 7,87\%$ . Didapatkan korelasi positif dengan kekuatan korelasi sedang antara kadar PICP dan luas fibrosis dari LGE-CMR ( $p=0,015$ ,  $r=0,433$ ).

**Kesimpulan:** Peningkatan kadar PICP memiliki korelasi positif berkekuatan sedang dengan luas fibrosis ventrikel kiri pada pasien SKA-EST yang dilakukan IKPP.

**Kata kunci:** *carboxy-terminal propeptide of procollagen type I*, fibrosis miokardial, *late gadolinium enhancement*, sindroma koroner akut dengan elevasi segmen ST, intervensi koroner perkutan primer.

**Correlation Between C-Terminal Propeptide of Procollagen Type I and Myocardial Fibrosis Assessed by Cardiac Magnetic Resonance in Patients Treated with Primary Percutaneous Coronary Intervention Case Study at Dr. Kariadi General Hospital Semarang**

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**ABSTRACT**

**Background:** Fibrosis is a major contributor to the development of heart failure in patients with ST-elevation myocardial infarction (STEMI), even after undergoing primary percutaneous coronary intervention (PPCI). The extent of fibrosis can be assessed through late gadolinium enhancement cardiac magnetic resonance (LGE-CMR) imaging. The process of fibrosis can be evaluated using the measurement of carboxy-terminal propeptide of procollagen type I (PICP). However, no previous studies have examined the relationship between them; therefore, this research aims to determine the correlation between PICP and myocardial fibrosis assessed by LGE-CMR.

**Methods:** This study is a prospective cohort study involving post-STEMI patients who underwent successful PPCI. Patients' PICP levels were examined on the 4th day post-STEMI using the ELISA method, and LGE-CMR was performed between day 60 and 75 post-STEMI. The correlation between PICP levels and myocardial fibrosis was analyzed using the Pearson test.

**Results:** There were a total of 31 study subjects with a mean age of  $52 \pm 10$  years, and the majority were male (90%). The mean total ischemic time in this study was  $489 \pm 228$  minutes. Non-anterior area was the most common location of the infarction (58.1%), and 54.8% of patients undergoing complete revascularization. The PICP levels had a median of 4.37 (0.68-26.68) ng/ml, and the mean fibrosis area from the LGE-CMR imaging was  $18.33 \pm 7.87\%$ . A moderately positive correlation was found between PICP levels and the extent of fibrosis assessed by LGE-CMR ( $p=0.015$ ,  $r=0.433$ ).

**Conclusions:** An increase in PICP levels is moderately positively correlated with the extent of left ventricular fibrosis in patients with STEMI who underwent primary PCI.

**Keyword:** carboxy-terminal propeptide of procollagen type I, myocardial fibrosis, late gadolinium enhancement, ST-elevation myocardial infarction, primary percutaneous coronary intervention