

ARTIKEL PENELITIAN

Korelasi antara Kadar Testosteron dan Proses *Remodeling* Ventrikel Kiri pada Penderita Infark Miokardium Akut

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Abstrak

Infark miokardium akut merupakan penyebab utama kematian di dunia. Perbedaan jenis kelamin berperan terhadap mortalitas jangka panjang pascainfark miokardium yang menunjukkan gambaran pola fisiologi regenerasi miokardium yang spesifik. Kematian setelah infark miokardium lebih tinggi pada perempuan. *Remodeling* ventrikel kiri merupakan proses penyembuhan luka pascainfark miokardium yang menjadi petunjuk keadaan gagal jantung maupun kematian. Proses ini berpengaruh penting pada fungsi ventrikel dan prognosis *survival* yang dapat didiagnosis dengan pemeriksaan ekokardiografi. Terdapat kontroversi berkaitan dengan peranan androgen pada proses *remodeling* jantung. Walaupun masih terdapat perdebatan, androgen memiliki peran terhadap *remodeling* ventrikel kiri dan bersifat protektif terhadap proses fibrosis yang maladaptif. Dilakukan penelitian observasional analitik yang bersifat prospektif untuk mengkaji peranan testosteron terhadap *remodeling* ventrikel kiri pada pasien infark miokardium akut di RSUP Dr. Hasan Sadikin Bandung selama Maret–Oktober 2015. Penelitian dilakukan pada 60 orang laki-laki usia 40–77 tahun penderita infark miokardium akut. Pemeriksaan ekokardiografi, pengukuran kadar testosteron total, testosteron bebas, dan testosteron bioavailabel dilakukan sebanyak dua kali. Pemeriksaan pertama dilakukan saat pasien didiagnosis infark miokardium akut dan pengulangan 4–6 minggu kemudian. Usia rata-rata penderita 56,16±8,48 tahun. Bila dibanding dengan pemeriksaan pertama dan kedua, tampak peningkatan kadar testosteron total yang signifikan (785,00±661,76 ng/dL vs 822,33±365,64 ng/dL; p=0,004), penurunan kadar testosteron bebas (24,66±17,91 ng/dL vs 19,00±15,24 ng/dL; p=0,067), dan penurunan kadar testosteron bioavailabel (475,21±353,10 ng/dL vs 394,98±314,85 ng/dL; p=0,166). Analisis korelasi *Rank Spearman* memperlihatkan korelasi bermakna antara testosteron bebas dan *relative wall thickness* (p=0,019), serta testosteron bioavailabel dengan *relative wall thickness* (p=0,014). Simpulan, testosteron berperan pada proses *remodeling* ventrikel kiri pascainfark miokardium akut yang diperlihatkan dengan peningkatan kadar testosteron total serta penurunan kadar testosteron bebas maupun testosteron bioavailabel yang memiliki afinitas yang kuat dengan kardiomyosit.

Kata kunci: Infark miokardium akut, *remodeling* ventrikel kiri, testosteron

Corellation between Testosterone Level and Left Ventricular Remodeling Process in Acute Myocardial Infarction Patient

Abstract

Myocardial infarction (MCI) is a leading cause of death worldwide. Gender differences in long term mortality after MCI lead to a specific physiologic pattern of myocardial regeneration. Moreover mortality after MCI was reported to be higher in women. Left ventricular remodeling is cardiac wound healing after MCI indicate a high risk of heart failure and death. This remodeling can importantly affect the function of the ventricle and prognosis for survival which can be diagnosed by echocardiography. Controversial information exert about the role of androgen in cardiac remodeling. Even the evidence still debatable, androgen has a role in left ventricular (LV) remodeling and protect heart from maladaptive fibrosis. A prospective analytical observational study was conducted to evaluate the role of testosterone in LV remodeling in acute myocardial infarction patients. The study comprised 60 men aged 40–77 years with acute myocardial infarction in Dr. Hasan Sadikin Hospital during March–October 2015. Echocardiographic study and the level of total, free, and bioavailable testosterone were measured twice. The first measured when they diagnosed acute myocardial infarction and the second after 4–6 weeks. The age of patient was 56.16±8.487 years old. Comparing the first and the second measure indicate that total testosterone significantly increased (785.00±661.76 ng/dL vs 822.33±365.64 ng/dL, p=0.004), free testosterone decreased (24.66±17.91 ng/dL vs 19.00±15.24 ng/dL, p=0.067), and bioavailable testosterone decreased (475.21±353.10 ng/dL vs 394.98±314.85 ng/dL, p=0.166). Correlation analysis by *Rank Spearman* showed significantly correlation between free testosterone with relative wall thickness (p=0.019), and bioavailable testosterone with relative wall thickness (p=0.014). It is concluded that testosterone has a role on LV remodeling process after myocardial infarction showed by increasing of total testosterone and decreasing of free and bioavailable testosterone which have great affinity with cardiomyocyte.

Key words: Acute myocardial infarction, LV remodeling, testosterone

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