

KORELASI ANTARA FUNCTIONAL CLASS NYHA DENGAN RASIO TNF- α /IL-10 PADA PENDERITA GAGAL JANTUNG

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Abstrak

Latar Belakang: Pada penderita gagal jantung diketahui terjadi aktivasi sistem imun. Aktivasi terhadap mediator pro inflamasi, dalam hal ini TNF- α , menimbulkan antara lain disfungsi endothel, remodelling ventrikel dan juga apoptosis yang pada akhirnya mengakibatkan perburukan gagal jantung. Pada penderita gagal jantung, sebagai counter balance, juga terjadi peningkatan mediator anti inflamasi dalam hal ini IL-10. TNF- α berperan memberikan stimulus bagi produksi sitokin IL-10. IL-10 menghambat sintesa TNF- α , menghambat ROS dan menghambat apoptosis yang pada akhirnya memberikan efek protektif.

Tujuan: Mempelajari korelasi antara *functional class* NYHA dengan rasio TNF- α /IL-10 pada penderita gagal jantung.

Metode: Penelitian ini menggunakan pendekatan *correlational study*. 29 penderita gagal jantung dikumpulkan secara *purposive sampling*. Dilakukan pemeriksaan konsentrasi TNF- α plasma dan konsentrasi IL-10 plasma.

Hasil: Hasil penelitian ini menunjukkan bahwa konsentrasi TNF- α dan IL-10 meningkat seiring dengan peningkatan *functional class* NYHA. Rerata konsentrasi TNF- α pada *functional class* II NYHA yaitu 3.52 pg/mL. Sementara itu rerata konsentrasi TNF- α pada *functional class* III NYHA menunjukkan nilai minimum 4.50 pg/mL. Pada *functional class* IV NYHA, rerata konsentrasi TNF- α 7.07 pg/mL. Rerata konsentrasi IL-10 pada *functional class* II NYHA yaitu 2.33 pg/mL. Nilai minimum rasio TNF- α /IL-10 pada *functional class* II NYHA yaitu 1.00 dengan nilai maksimum 2.18 serta rerata 1.52. Nilai minimum rasio TNF- α /IL-10 pada *functional class* III NYHA yaitu 1.10 dengan nilai maksimum 2.03 serta rerata 1.74. Nilai minimum rasio TNF- α /IL-10 pada *functional class* IV NYHA yaitu 1.59 dengan nilai maksimum 2.84 serta rerata 2.36. Hasil analisis statistik menunjukkan bahwa terdapat korelasi positif, kuat dan bermakna antara *functional class* NYHA dengan rasio TNF- α /IL-10 pada penderita gagal jantung ($r = 0.720$; $p < 0.001$).

Kesimpulan: Terdapat korelasi positif, kuat dan bermakna antara *functional class* NYHA dengan rasio TNF- α /IL-10 pada penderita gagal jantung ($r = 0.720$; $p < 0.001$).

Kata Kunci: TNF- α , IL-10, gagal jantung.

CORRELATION BETWEEN NYHA FUNCTIONAL CLASS WITH TNF- α /IL-10 RATIO IN PATIENTS WITH HEART FAILURE

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Abstract

Background: In patients with heart failure is known to occur activation of the immune system. Activation of the pro-inflammatory mediator, in this case TNF- α , causing among other things; endothelial dysfunction, ventricular remodelling and also apoptosis which ultimately lead to worsening heart failure. In patients with heart failure, as a counter balance, there is also an increase of anti-inflammatory mediator, in this case IL-10. TNF- α works as a stimulus for the production of the IL-10. On the other hand, IL-10 inhibits the synthesis of TNF- α , ROS generation and apoptosis which in turn provide a protective effect.

Objective: to analyze the correlation between NYHA functional class with TNF- α /IL-10 ratio in patients with heart failure.

Methods: This is a correlational study. 29 patients with heart failure were collected by purposive sampling. Plasma concentration of TNF- α and IL-10 were calculated.

Results: The results showed that the concentrations of TNF- α and IL-10 increase with increasing NYHA functional class. Mean concentration of TNF- α in NYHA functional class II is 3.52 pg/mL. Meanwhile mean concentration of TNF- α in NYHA functional class III is 4.50 pg/mL. In NYHA functional class IV, mean concentration of TNF- α is 7.07 pg/mL. Mean concentration of IL-10 in NYHA functional class II is 2.33 pg/mL. Meanwhile mean concentration of IL-10 in NYHA functional class III is 2.61 pg/mL. In NYHA functional class IV, mean concentration of IL-10 is 3.04 pg/mL. The minimum value of TNF- α / IL-10 ratio in NYHA functional class II is 1.00 and the maximum value is 2.18 with mean value 1.52. The minimum value of TNF- α / IL-10 ratio in NYHA functional class III is 1.10 and the maximum value is 2.03 with mean value 1.74. The minimum value of TNF- α / IL-10 ratio in NYHA functional class IV is 1.59 and the maximum value is 2.84 with mean value 2.36. Statistical analysis showed that there were a positive, strong and significant correlation between NYHA functional class with TNF- α /IL-10 ratio in patients with heart failure. ($r = 0.72$; $p < 0.001$)

Conclusion: There were a positive, strong and significant correlation between NYHA functional class with TNF- α /IL-10 ratio in patients with heart failure ($r = 0.72$; $p < 0.001$).

Keywords: TNF- α , IL-10, heart failure