TESIS

PERAN *HEART-TYPE FATTY ACID BINDING PROTEIN* DALAM MENDIAGNOSIS INFARK MIOKARD AKUT

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Abstrak

Pendahuluan : Infark miokard akut (IMA) adalah salah satu diagnosis terbanyak di unit gawat. Diagnosis dini IMA sangat dibutuhkan karena intervensi tepat waktu memiliki manfaat prognostik. Namun seperlima kasus IMA tidak dikenali karena presentasi tidak khas, baik pada keluhan nyeri dada, perubahan EKG, maupun peningkatan troponin jantung (cTn) yang merupakan baku emas biomarker IMA. Penelitian untuk mencari biomarker yang lebih sensitif, spesifik, dan lebih dini muncul setelah onset nyeri dada terus dilakukan. *Heart type fatty acid binding protein* (H-FABP) merupakan protein dengan berat molekul rendah di sitosol miosit. Protein ini sudah dapat mulai terdeteksi 30 menit setelah nyeri dada dan mempunyai potensi sebagai biomarker pada IMA.
Metode: Penelitian ini merupakan penelitian uji diagnostik dengan keluaran AUC yang dilaksanakan di IGD RSUP Dr. M. Djamil dan rumah sakit lain di Padang selama 6 bulan, 54 sampel dipilih secara *consecutive sampling* yaitu penderita nyeri dada khas infark dengan onset ≤ 12 jam yang memenuhi kriteria inklusi dan ekslusi. *Reference standard* dalam diagnosis IMA adalah kriteria WHO yaitu nyeri dada khas, perubahan pada elektrokardiografi, dan peningkatan biomarker jantung. Pengukuran H-FABP dilakukan saat presentasi di IGD. Data dianalisis secara statistik melalui analisis kurva ROC untuk mendapatkan nilai AUC dan *cut off point* H-FABP. Melalui nilai *cut off point* yang diperoleh, dilakukan penghitungan sensitivitas, spesifisitas, nilai prediksi positif, nilai prediksi negatif, dan akurasi H-FABP dalam mendiagnosis IMA.
Hasil: Nilai AUC H-FABP dalam mendiagnosis IMA adalah 86,4% (IK 95%, 0,756 s.d. 0,973; $p < 0.001$) dengan *cut off point* 2388 pg/ml (sensitivitas 80%, spesifisitas 78,6%, nilai prediksi positif 91,4%, nilai prediksi negatif 57,9%, dan akurasi 79,6%).
Kesimpulan: *Heart type fatty acid binding protein* dapat digunakan untuk mendiagnosis infak miokard akut.
Kata kunci: H-FABP, IMA, Nyeri dada, Troponin.

THE ROLE OF *HEART-TYPE FATTY ACID BINDING PROTEIN* IN DIAGNOSING ACUTE MYOCARDIAL INFARCTION

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Abstract

Introduction: Acute myocardial infarction (AMI) is one of the most common diagnoses in the emergency department. Early diagnosis of AMI is very important because timely intervention has prognostic benefits. However, one fifth of AMI's cases are not recognized because of the atypical presentation, either in chest pain, ECG changes, or elevated cardiac troponin (cTn), which is the gold standard of IMA biomarkers. Research looking for more sensitive, specific, and earlier biomarkers is emerging after the onset of chest pain continues. Heart type fatty acid binding protein (H-FABP) is a low molecular weight protein in the cytosol. This protein can be detected 30 minutes after chest pain and has potential as a biomarker in AMI.

Methods: This study was a diagnostic test study with AUC output, carried out in the ER of RSUP Dr. M. Djamil and other hospitals in Padang for 6 months. With consecutive sampling, 54 samples with typical chest pain infarction with an onset of ≤ 12 hours who met the inclusion and exclusion criteria were selected. The reference standard in the diagnosis of AMI is the WHO criteria, namely typical chest pain, changes in electrocardiography, and an increase in cardiac biomarkers. Measurement of H-FABP was carried out during the presentation in the ER. Data were analyzed statistically through ROC curve analysis to obtain the AUC value and the H-FABP cut off point. Through the cut off point value obtained, the calculation of sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of H-FABP in diagnosing AMI was carried out.

Results: The AUC H-FABP value in diagnosing AMI was 86.4% (95% CI, 0.756 to 0.973; $p < 0.001$) with a cut off point of 2388 pg/ml (sensitivity 80%, specificity 78.6%, positive predictive value. 91.4%, negative predictive value of 57.9%, and accuracy of 79.6%).

Conclusion: Heart type fatty acid binding protein can be used to diagnose acute myocardial infarction.

Key words: H-FABP, AMI, Chest pain, Troponin.