

## Late potential sebagai prediktor aritmia pasca infark miokard akut dengan menggunakan signal-averaged ECG = Late potential as arrhythmia predictor post-acute myocardial infarction by using signal-averaged ECG

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### Abstrak

Latar Belakang: Risiko aritmia pasca infark miokard akut 5-11%. Perlu adanya stratifikasi risiko terjadinya aritmia pasca infark miokard akut. Aritmia yang terjadi pasca infark miokard akut dapat disebabkan karena perubahan elektrofisiologi, milieu (transient factors) dan aritmia spontan. Penelitian menggunakan late potential sebagai salah satu modalitas untuk mendapat gambaran perubahan elektrofisiologi yang terjadi pasca infark miokard akut dan sebagai prediktor risiko terjadinya aritmia. Late potential didapatkan dengan pemeriksaan SA-ECG.

Subyek: Dikumpulkan 38 kasus infark miokard akut baru, sejak bulan Juni 2004 sampai dengan Februari 2005. Usia berkisar antara 35 - 65 tahun. Kriteria inklusi diagnosis infark miokard akut dengan menggunakan kriteria WHO. Kriteria eksklusi: infark sebelumnya, blok cabang berkas, angina pectoris tak stabil, atrial fibrilasi dan flutter, infark miokard dengan stroke iskemia, bedah pintas koroner dan riwayat angioplasti (stent atau balon).

Metodologi: Penelitian ini menggunakan desain kohort, dilakukan pemeriksaan Signal Averaged ECG untuk mendapatkan late potential, kontrol internal late potential negatif. Dilakukan uji hipotesis yang sesuai untuk mendapatkan nilai kemaknaan pada penelitian ini. Pemeriksaan SA-ECG dilakukan pada hari 6-16 perawatan di RS Harapan Kita, late potential sesuai dua dari 3 kriteria WHO.

Hasil : Laki-laki 30 (78,9%), wanita 8 (21,1%) dan usia rerata 52,34 tahun. Jenis infark Q wave 18 (47,4%) dan non Q wave 20 (52,6%). Aritmia terutama PVC 7 (18,4%), ventrikular takikardia (VT) 2 (5,3%) dan 29 (76,3%) normal. Lokasi infark terutama inferior 17 (44,7%) , non inferior 21 (55,3%). Rerata saat dilakukan pemeriksaan SA-ECG yaitu 9,6 hari dengan SB  $\pm$  2,6 hari. Parameter pemeriksaan SA-ECG yaitu 1. QRSD rerata 114,8 ms, SB  $\pm$  15,8 ms, 2. HFLA rerata 36,2 ms, SB  $\pm$  12,8 ms, 3. RMS rerata 30,2  $\mu$ V, SB  $\pm$  15,9  $\mu$ V. Didapatkan late potential positif 13 (34,2%). Kadar kalium bulan pertama dan bulan kedua dalam Batas normal. Aritmia terjadi pada bulan pertama 2 (5,3%) dan 9 (23,5%). Pada bulan pertama aritmia terjadi pada pasien dengan satu late potential positif dan satu dengan late potential negatif. Sedangkan pada bulan ke 2 didapatkan terjadi aritmia 7 (53,8%) dengan late potential positif dan 2 (8%) dengan late potential negatif,  $p < 0,003$ , IK 95% dan relatif risk (RR) 6.73. Tidak didapatkan hubungan bermakna lokasi infark, saat pemeriksaan SA-ECG dengan terbentuknya late potential. Tidak didapatkan hubungan bermakna antara kalium dan kejadian aritmia.

Kesimpulan : Late potential dapat digunakan sebagai salah satu modalitas untuk stratifikasi risiko terjadinya aritmia, didapatkan aritmia dengan late potential positif pada bulan 2,  $p < 0,003$  dan risiko relatif sebesar

6,73. Perlu dilakukan penelitian dengan populasi yang lebih banyak, melibatkan beberapa seater, dilakukan menggunakan halter monitor untuk mengawasi terjadinya aritmia dan dalam waktu 1 tahun pasca infark miokard akut.

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<i>Background: Risk of arrhythmias in post acute myocardial infarction in first 2 years was within range 5-11%. The stratification of arrhythmia event in post acute myocardial infarction was needed. There are several factors in arrhythmias mechanism, such as electrophysiology alteration, milieu (transient factors) and spontaneous arrhythmias. In this study, late potential as cardio electrophysiology state post infarction is used to be arrhythmias predictor. Late potential description was obtained used by Signal-Averaged ECG.

Subjects: Thirty eight consecutive patients admitted to coronary care unit in Dr. Cipto Mangunkusumo and Persahabatan hospitals with documented acute myocardial infarction, since June 2004 to February 2005. Their ages were ranging from 35 to 65 years: Patients were included according to WHO acute myocardial infarction criteria.

Methods: This is a cohort study. SA-ECG was performed to obtained late potential, negative late potential patients as internal control. Signal-Averaged ECG was done in 6 - 16 days post acute myocardial infarction in Harapan Kita hospital. An abnormal (positive) SA-ECG is considered if two or more of the following three criteria from WHO.

Results: Subjects consisted of 30 (78,9%) male patients and female of 8 (21,1%). The mean age was 52,34 years. The incidence Q wave and non Q wave of acute myocardial infarction were 18 (47,4%) and 20 (52,6%). Type of arrhythmias were premature ventricle contraction (PVC) 7 (18,4%), ventricular tachycardia (VT) 2 (5,3%) and normal 29 (76,3%). The inferior and non inferior wall site of infarction were 17 (44,7%) and 21 (55,3%). The mean time (days) recording of SA-ECG was 9,6 days, SD 12,6 days. There were three parameters of SA ECG included L QRSD mean 114,8 ms, SD 115,8 ms, 2. HFLA mean 36,2 ms, SD  $\pm$  12,8 ms, 3, RMS mean 30,2 p.V, SD  $\pm$  15,9 IN. The incidence abnormal SA-ECG was 13 (34,2%), Kalium level in first and second month of following was within normal range. The arrhythmias event in first and second month were 2 (5,3%) and 9 (23,7%). in first month, arrhythmia event in one positive and one negative late potential. In second month, seven of 9 patients had positive late potential. There was significant relation between abnormal SA-ECG and arrhythmia event in second month,  $p < 0.003$  (CI 95%: 1,63-27,89), relative risk (RR) 6,73. There was no significant relation in site of infarction, time recording of SA-ECG, and kalium level with arrhythmia event.

Conclusion: The late potential could be used as one of arrhythmia predictors of post acute myocardial infarction. There was significant relation between late potential and arrhythmia in second month,  $p < 0,003$ , relative risk (RR) 6,73. Further study is needed with greater samples size and appropriate instruments (eg. Holter monitor).</i>