

## Proatherogenic/antiatherogenic high density lipoprotein type in acute coronary syndrome and healthy male person

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### Abstrak

Tujuan: Membuat kriteria tipe HDL proaterogenik/antiaterogenik berdasarkan konsentrasi Apolipoprotein A-I

(ApoA-I), Paraoxonase-1 (PON-1), Neopterin dan HDL-cholesterol.

Metode: Penelitian dilakukan secara kontrol-kasus pada 52 subjek dengan sindrom koroner akut (SKA) dan 30 subjek

kontrol sehat. Tipe HDL proaterogenik dan antiaterogenik ditentukan berdasarkan konsentrasi ApoA-I, PON-1, Neopterin

dan HDL-cholesterol. Konsentrasi ApoA-I diukur menggunakan metode imunoturbidimetri, PON-1 diukur dengan metode

kolorimetri, Neopterin diukur dengan metode ELISA dan HDL-cholesterol diukur dengan metode homogenous. Analisis

regresi logistik univariat dilakukan dengan SKA sebagai variabel tergantung dan konsentrasi ApoA-I, PON-1, Neopterin

dan HDL-cholesterol sebagai variabel tidak tergantung. Tipe HDL proaterogenik dan antiaterogenik ditentukan dengan

menggunakan nilai cut off dan odd ratio ApoA-I, PON-1, Neopterin dan HDL-cholesterol.

Hasil: Umur subjek penelitian adalah  $50,89 \pm 12,63$  tahun, konsentrasi HDL-cholesterol :  $39,82 \pm 9,84$  mg/dL, Apo

A-1 :  $119,77 \pm 32,05$  mg/dL, PON-1 :  $41,26 \pm 18,19$  kU/L, Neopterin :  $16,22 \pm 38,10$  nmol/L. Cut off ApoA-I, PON-1

dan Neopterin secara berturut-turut adalah  $124,5$  mg/dL,  $40,8$  kU/L, and  $7,016$  nmol/L. Hasil analisis regresi logistik

univariat didapatkan OR untuk ApoA-I, PON-1 dan Neopterin secara berturut-turut  $29,759$  (95% CI :  $4,074$  ?  $217,382$ ),

$1,647$  (95% CI :  $0,412$  ?  $6,586$ ),  $4,317$  (95% CI :  $1,098$  ?  $16,977$ ). Dengan sistem scoring, kami menyimpulkan total

score  $> 18$  menunjukkan tipe HDL proaterogenik, dan total score  $< 18$  merupakan tipe HDL antiaterogenik. Dengan

sistem scoring ini kami menemukan 78,85% populasi SKA termasuk ke dalam tipe HDL proaterogenik.

Kesimpulan: Disfungsi HDL atau tipe HDL proaterogenik/antiaterogenik dapat diperkirakan dengan menggunakan sistem

scoring ApoA-I ? PON-1 ? Neopterin ? HDL-cholesterol. Subjek dengan total score  $< 18$  dikelompokkan ke dalam tipe HDL

antiaterogenik, sedangkan subjek dengan total score  $> 18$  memiliki tipe HDL proaterogenik.

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<b>Abstract</b><br>

**Aim:** To make proatherogenic/antiatherogenic HDL type criteria using Apolipoprotein A-I (ApoA-I), Paraoxonase-1

(PON-1), Neopterin and HDL-cholesterol levels, which may be useful in clinical practice.

**Methods:** This was a case control study recruiting 52 subjects with Acute Coronary Syndrome (ACS) and 30 control

healthy subjects. HDL type was classified into antiatherogenic and proatherogenic based on the levels of ApoA-I,

PON-1, Neopterin and HDL-cholesterol. Concentrations of ApoA-I was measured by immunoturbidimetry method,

PON-1 was measured by colorimetric method, Neopterin was measured by ELISA, and HDL-C was determined by

homogenous method. Univariate logistic regression analysis was done using ACS as a dependent variable and levels

of ApoA-I, PON-1, Neopterin and HDL-cholesterol as independent variables.

**Proatherogenic/antiatherogenic HDL**

type was determined by using ApoA-I, PON-1, Neopterin and HDL-cholesterol cut off and odd ratios.

**Results:** Patient's age was  $50.89 \pm 12.63$  year, HDL-C was  $39.82 \pm 9.84$  mg/dL, Apo A-1 was  $119.77 \pm 32.05$  mg/

dL, PON-1 was  $41.26 \pm 18.19$  kU/L, Neopterin was  $16.22 \pm 38.10$  nmol/L. Cut offs of ApoA-I, PON-1 and Neopterin

successively were 124.5 mg/dL, 40.8 kU/L, and 7.016 nmol/L. On univariate logistic regression analysis showed that

OR of ApoA-I, PON-1 and Neopterin respectively were 29.759 (95% CI : 4.074 - 217.382), 1.647 (95% CI : 0.412 -

6.586), 4.317 (95% CI : 1.098 - 16.977). Using scoring system, we concluded that total score  $> 18$  was proatherogenic

HDL type, and total score  $< 18$  was antiatherogenic HDL type. With this scoring we found 78.85% had proatherogenic

HDL type in ACS population.

**Conclusions:** Dysfunctional HDL or proatherogenic/antiatherogenic HDL type can be predicted by using ApoA-I -

PON-1 - Neopterin - HDL-cholesterol scoring system. Those with score of 18 are supposed to have antiatherogenic

HDL type, and those with score of  $> 18$  were having proatherogenic HDL type.