

Correlation between Levels of Remnant Cholesterol versus LDL, A Cross-Sectional Study

Sathienwit Rowsathien^{1*}, Krisada Sastravaha¹, Prajongjit Chamsaard¹ and Prin Vathesatogkit²

¹Cardiology unit, Department of Medicine, Bhumibol Adulyadej Hospital, Royal Thai Air Force, Bangkok, Thailand

²Division of Cardiology, Department of Medicine, Faculty of Medicine, Ramathibodi Hospital, Mahidol university, Bangkok, Thailand

Abstract

Background: High levels of LDL cholesterol were directly related to the risk of atherosclerosis, metabolic diseases, and cardiovascular complications. However, in some groups of patients with low level, they were also found. Lead to the risk of other lipid components, including Remnant cholesterol. Recent study found related to cardiovascular risk as well. Currently, no direct comparison between Remnant cholesterol and LDL cholesterol level.

Objective: To study the correlation between Remnant cholesterol and LDL levels both in fasting and non-fasting state with the medical conditions that increase the risk of cardiovascular disease.

Methods: To determine the association between remnant cholesterol and LDL. A 200 cases of Thai begins at the age of 18 years old were tested for total cholesterol, LDL, HDL, and TG level both in the fasting and non-fasting states. The obtained values were calculated for Remnant cholesterol levels and analyzed for a direct correlation between the two levels, also includes a comparative analysis. The AUC was used to assess the prognostic accuracy of lipid level to diagnose the condition that poses cardiovascular risks.

Results: In the sample of 200 patients tested for lipid. At a mean age of 64.5 years, 42 percent were female, and 76.5 percent received statins. We found that Remnant cholesterol had poorly correlation with LDL levels when compared among the fasting conditions ($r = 0.164, 0.119$), as well as among the statin used or not ($r = 0.118, 0.293$). The analysis found that Remnant cholesterol does well correlate with TG levels ($r = 0.770$). Also, the predictive value of Remnant cholesterol over LDL levels for detect diabetes mellitus, coronary artery disease, and overweight (AUC = 0.610, 0.588, 0.593).

Conclusion: In this study, We found that Remnant cholesterol does correlate poorly with LDL in any fasting state. Prediction of the incidence of diabetes mellitus, coronary heart disease, and overweight has seemed better with Remnant cholesterol. More studies may need for decreasing the knowledge gap and provide a better guide for disease prevention.

Keywords:

Background:

Methods:

Results and Discussion:

***Corresponding author:** Sathienwit Rowsathien, Cardiology unit, Department of Medicine, Bhumibol Adulyadej Hospital, Royal Thai Air Force, Bangkok, Thailand, Tel: + 66946244669; E-mail: sathienwit.r@gmail.com

Received: 05-Oct-2022, Manuscript No. asoa-22-65643; **Editor assigned:** 07-Oct-2022, PreQC No. asoa-22-65643 (PQ); **Reviewed:** 21-Oct-2022, QC No. asoa-22-65643; **Revised:** 24-Oct-2022, Manuscript No. asoa-22-65643 (R); **Published:** 28-Oct-2022, DOI: 10.4172/asoa.1000187

Citation: Rowsathien S, Sastravaha K, Chamsaard P, Vathesatogkit P (2022) Correlation between Levels of Remnant Cholesterol versus LDL, A Cross-Sectional Study. *Atheroscler Open Access* 7: 187.

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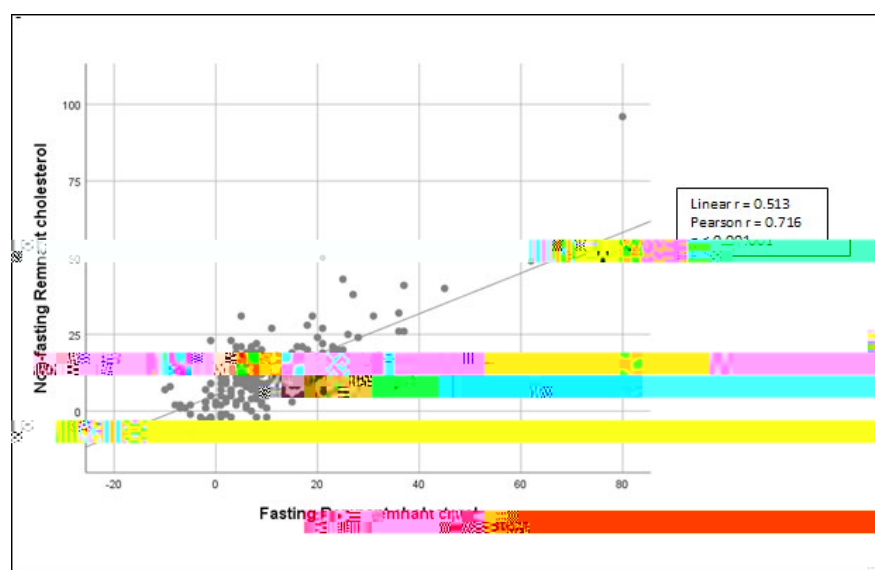


Figure 2: Correlational analysis between fasting Remnant cholesterol and LDL (mg/dl) (n = 200).

Table 1: Baseline Characteristics (n=200).

Age - years	64.53 ± 13.95
Female sex - no. (%)	84 (42)
BMI - kg/m ²	24.62 ± 4.73
SBP (mmHg)	129.67 ± 19.19
Any history of smoking	71 (35.5)
Any statin used - no. (%)	153 (76.5)
High intensity statin used*	121 (60.5)
Underlying diseases	
Congestive heart failure - no. (%)	67 (33.5)
Had undergone echocardiography. - no. (%)	138 (69)
LVEF - %**	52.25 ± 18.06
Diabetes mellitus - no. (%)	66 (33)
Hypertension - no. (%)	167 (83.5)
Dyslipidemia - no. (%)	156 (78)
Prior stroke/TIA - no. (%)	18 (9)
Chronic kidney disease - no. (%)	77 (38.5)
eGFR - ml/min/1.73 m ² (CKD-EPI)	65.51 ± 28.57
Coronary artery disease - no. (%)	125 (62.5)
Atrial fibrillation	28 (14)
Overweight - no. (%)***	80 (40)
Obesity - no. (%)***	24 (12)
10 years Thai CV risk (%)	16.05 ± 9.82

BMI, body mass index; SBP, systolic blood pressure; TIA, transient ischemic attack; eGFR, estimated glomerular filtration rate; LVEF, left ventricular ejection fraction; CKD-EPI, Chronic Kidney Disease Epidemiology Collaboration
 *Based on intensity of statin definition (32) **Mean of 138 patients.
 *** Overweight as 25 kg/m², Obesity as 30 kg/m² (33-37)

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