

COMPARATIVE STUDY OF LDL-CHOLESTEROL LEVELS IN THAI PATIENTS BY THE DIRECT METHOD AND USING THE FRIEDEWALD FORMULA

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Abstract. In this study, low-density lipoprotein cholesterol (LDL-C) levels by direct measurement and estimation using the Friedewald formula, were compared among 1,016 Thai patients. The study assessed blood samples from out-patients sent to the Clinical Chemistry Laboratory, Department of Clinical Pathology, Rajvithi Hospital, Ministry of Public Health, for measurement of total cholesterol (TC), LDL-C, high-density lipoprotein cholesterol (HDL-C) and triglyceride (TG) levels, January 2004-December 2005. Patients' ages ranged 8-89 years, 573 (56.4%) were females. Linear regression analysis showed the two methods had highly significant correlation coefficients ($p < 0.001$). Upon comparing the two methods, at TG levels of 151-200 mg/dl, bias was 18.3 mg/dl; and for TG levels of 201-300 mg/dl, bias was lower at 11.4 mg/dl; for TG levels of 301-400 mg/dl, bias increased to 20.9 mg/dl. The direct assay meets currently established analytical performance targets and may be useful for the diagnosis and management of hyperlipidemic patients. The Friedewald formula did not give a homogeneous performance when estimating LDL-C levels in samples with different TG levels.

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