Evaluating Dry Chemistry Estimated Direct Low Density Lipoprotein (LDL), Against Calculated LDL from Different Formulae

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ABSTRACT:

Background-Lipid profile is an important investigation for many diseases especially cardiovascular diseases. LDL cholesterol is an important component of lipid profile and direct LDL cholesterol is enzymatic whereas indirect or calculated LDL cholesterol is based on other components of lipid profile and devised by formula. The most well-known is Friedewald's formula. However apart from Freidewald's formula which often doesn't correlate with direct estimation we have many other formulae. This study attempts to correlate Direct LDL cholesterol estimated on Dry chemistry with different formulae.

Materials & Methods-The 202 samples received during study period were correlated with different formulae like Friedewald, Cordova and Cordova, Vujovic et al, Ahmadi et al, Anandaraja et al, Puavilai et al, Hattori et al. and analyzed for the same. The lipid profiles were analyzed on QuidelOrtho's Vitros 4600 Dry chemistry.

Results-Our results showed a negative correlation indicting that Friedewald's formula underestimates LDL cholesterol in comparison to direct estimation. Calculated LDL cholesterol with Friedewald's formula after 400 mg/dL of triglycerides (TGs) was found high undesirable . Our results show that Cordova's formula does not provide any significant advantage over Friedewald's formula and Ahmadi's formula didn't show close correlation.Anandaraja's formula did not provide any advantage over Friedewald's formula for LDL cholesterol estimation.

Conclusion- Direct LDL cholesterol measured using dry chemistry shows good correlation with calculated LDL cholesterol derived from Vujovic's formula in the Indian population and can be reliably used in resource-limited settings across a wide range of TGs concentrations.

KEY WORDS: Direct LDL cholesterol, Friedewald's formula, Dry chemistry, Vujovic's

formula, Cardiovascular disease.