

A Study of the Associations of Platelet-Indices and Lipid Profile Parameters of the Individuals With no Previous History of Cardiovascular Diseases

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Platelet-Indices (PIs) are markers of platelet activation, which relates to the platelet's proliferation kinetics and morphology. Platelets play a key-role in the aetiology of cardiovascular diseases (CVDs), including atherosclerosis and its outcomes. This study was carried out to investigate whether the people who do not have any previous history of CVDs possess any reliable correlations in between PIs and lipid profile parameters. The study included 60 volunteers from the UH-KDU health and administrative staff; ages 40-70 years, males (80%) & females (20%). Full blood count (FBC) parameters of the participants were performed by automated analyser Sysmex-XP-100 and cross-checked by manual differential counts, while the lipid profile parameters were carried-out manually. The statistical analysis was carried-out by IBM-SPSS_V26. The data were first examined for normalization. Pearson and Spearman's correlation bivariate analyses were applied when the data showed normal and did not show normal respectively, for the two sets of parameters to establish correlations in-between them. In the Spearman bivariate analysis, the PIs, mean platelet volume (MPV) and platelet large cell ratio (PLCR) showed significant ($p < 0.05$) weak to moderate correlations only with low-density-lipoprotein (LDL) ($r = 0.292$; $r = 0.301$). Furthermore, there were a considerable number of significant ($p < 0.05$) reliable correlations in-between the platelet indices. It has been revealed that the platelet indices have a positive correlation with CVDs and, also reactive & large platelets present in patients with dyslipidemia lead to increased risk for CVDs. Moreover, the chronic inflammation and increased oxidative stress which is prominent in CVDs are accompanied with elevated levels of LDL of an individual. In our study, some of the PIs had weak to moderate positive correlations with LDL although the participants had no previous CVD history. Therefore, we suggest increasing the number of participants in order to examine the similar findings and further to monitor them for risk of the CVDs.

Keywords: Cardiovascular diseases (CVDs), Low-density-lipoprotein (LDL), Mean platelet volume (MPV), Platelet indices (PIs), Platelet large cell ratio (PLCR)