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USEFULNESS OF ASSESSING FASTING BLOOD GLUCOSE, SERUM INSULIN, C-PEPTIDE AND INSULIN RESISTANCE IN NON-DIABETIC ADULTS, ADULTS WITH SHORTER-DURATION DIABETES AND ADULTS WITH LONGER-DURATION DIABETES

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Recent studies have stated that increase in insulin resistance (IR) is the main indicator of type 2 diabetes mellitus (T2DM) and it is considered as an alarming marker of pre diabetes. C-peptide is becoming popular in assessing endogenous insulin secretion as well. Thus, the objective of this study was to determine the usefulness of assessing fasting blood glucose (FBG), fasting serum insulin (FSI), fasting serum C-peptide (FSC) and IR in a population of non-diabetic (ND) adults, adults with shorter-duration diabetes (SDD) and adults with longer-duration diabetes (LDD). The study was carried out with ND (n=12), adults with SDD (n=12, diabetes < 5 years) and adults with LDD (n=12, diabetes ≥ 5 years) aged 35-55 years. After 10 hours overnight fasting, venous blood samples were analyzed for FBG, FSI and FSC. IR was calculated using the equation; HOMA-IR = FSI (μU/mL) × FBG (mmoL/L) / 22.5 and results were analyzed using SPSS version 21. The mean FBG values were 78.78±8.88 mg/dL, 139.33±91.11 mg/dL and 150.00±60.00 mg/dL in ND, SDD and LDD groups respectively. Mean FSI values were within the normal range (<13.63μU/mL) in all three groups. Only subjects with SDD had an elevated mean IR value (>2.6), whereas the mean FSC values were below the upper limit of normal range in all three groups. Highest mean FSI, IR and FSC values were observed in subjects with SDD, while ND subjects had the lowest. In subjects with SDD, FSI was significantly higher than in LDD. All assessed parameters were significantly higher in SDD compared to ND group, whereas only mean FBG was significantly higher in LDD compared to ND group ($p<0.05$). Hence, FSI, IR and FSC are more applicable in assessing SDD rather than LDD.

Keywords: Diabetes Mellitus, Insulin Resistance, C-peptide