

MED/OP/13

Serum Vitamin D, Adiponectin and Insulin Resistance in Lean Healthy Sri Lankan Adults – A Preliminary Study

Senadheera SPAS¹, Weerakoon HTW¹, Weerakoon KGAD², Wijayarathna L³, Ravihari KP¹,
Weerasekara JAAUR¹, Dissanayake DMPK¹

¹Department of Biochemistry, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka

²Department of Parasitology, Faculty of Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka

³Department of Physiology, Faculty of Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka

Background: Insulin resistance (IR), low vitamin D (VD) and adiponectin levels are factors that are strongly linked with metabolic derangements. These factors significantly and silently elevate non-communicable-disease (NCD) risk even in apparently healthy and lean individuals.

Objective: This study assessed the lipid profile, and IR in a cohort of apparently healthy lean adults in Anuradhapura, Sri Lanka, along with VD and adiponectin levels considering their crucial roles in metabolism.

Methods: Fasting blood samples were collected from volunteers aged 30–59 years with normal body mass index (BMI), waist circumference (WC), and fasting plasma glucose (FPG). Plasma insulin, adiponectin, VD, and lipid profile were assessed, based on South Asian cutoffs. Lipid profile and FPG were assessed by colorimetric-enzymatic-assay-kit method. Insulin, VD and adiponectin levels were determined using immunoenzymatic-assay, chemiluminescent-microparticle-immunoassay (CMIA) and enzyme-linked-immunosorbent-assay (ELISA) respectively. TyG and HOMA-IR indexes were calculated to identify IR based on both Indian (4.65), and Korean (8.45) TyG and HOMA-IR (1.23) cutoffs. VD levels <30.0ng/mL, between 20.0–29.9ng/mL and <20.0ng/mL were considered as low, insufficient, and deficient respectively. Serum adiponectin levels <4 µg/mL were classified as low.

Results: Study consisted of 22 adults (1:1 gender ratio, mean age=42.3±2.8 years). Elevated total cholesterol (TC), LDL-C and triglycerides were detected in 11(50%), 17(77.27%), and 05(22.27%) participants respectively, while HDL-C was low in 06(27.27%). According to the Indian and Korean TyG indices and the HOMA-IR cutoff, 100% (22/22), 59% (13/22), and 45% (10/22) of adults, respectively, were identified as having IR. Low adiponectin was detected in 31.82% (7/22) individuals. VD was low in the majority (n=18,81.82%) and six (27%) had VD deficiency.

Conclusion: The presence of at least one NCD risk factor; dyslipidemia, IR, low VD and adiponectin was detected in 100% of these apparently healthy lean adults, highlighting the need for comprehensive community screening to uncover the hidden burden of non-communicable disease risk.

Keywords: Metabolic derangements, Lean adults, Insulin resistance