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**Abstract Topic:** - Complex traits and polygenic disorders

**Abstract Title:** - Metabolic insights into glycogen pathway by PBMC viability under glucose-limiting conditions in T2DM patients

**Presenting author name:** - Praveen Kumar K.S.

**Presenting author institute:** - JSS medical College, JSS-AHER, Mysuru

**Co-authors name:** - Sharath balakrishna

**Co-authors institute:** - Prabhakar Kamarthy

**Aims:** - Measure cell viability and glycogen degradation under glucose limiting conditions in mononuclear cells (PBMCs) of T2DM patients and healthy controls.

**Methods:** - A total of 21 patients diagnosed with T2DM and 21 healthy controls were considered for the study. PBMCs were isolated from peripheral blood by density gradient centrifugation using Ficoll Hispaque. We measured cell viability by trypan blue staining and glycogen degradation by PAS staining from PBMCs. The percentage of glycogen-positive cells was used as the measure of glycogen levels. Protein estimation was carried out in PBMC lysate by BCA method.

**Results:** - Upon glucose deprivation, glycogen levels were  $23.5 \pm 5.2$  in the T2DM group and  $12.3 \pm 2.6$  in the healthy control group ( $p = 0.001$ ; Student's t test) and the mean cell viability levels were  $52.3 \pm 4.3$  in the T2DM group and  $67.1 \pm 3.7$  in the healthy control group. The percentage cell viability was 1.2 times lower in the T2DM group;  $p = 0.001$ ; Student's t test).

**Conclusions:** - Reduction in PBMC viability and glycogen degradation T2DM may be due to reduced PGM1 enzyme activity and that could be one of the reason for impaired glycogen metabolism in T2DM.

**Keywords:** - Upon glucose deprivation, glycogen levels were  $23.5 \pm 5.2$  in the T2DM group and  $12.3 \pm 2.6$  in the healthy control group ( $p = 0.001$ ; Student's t test) and the mean cell viability levels were  $52.3 \pm 4.3$  in the T2DM group and  $67.1 \pm 3.7$  in the healthy control group. The percentage cell viability was 1.2 times lower in the T2DM group;  $p = 0.001$ ; Student's t test).