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## Elucidation of early markers in Insulin resistance Diabetes patients of Kashmir Valley.

Haamid Bashir<sup>1\*</sup>, Mohammad Hayat Bhat<sup>2</sup>, Sabhiya Majid<sup>1</sup>, Rabia Hamid<sup>3</sup>

*1\*Department of Biochemistry, Govt Medical College Srinagar-Research Centre University of Kashmir, India. 2, Department of Endocrinology SMHS, Govt Medical College Srinagar, 3, Department of Nano-Technology, University of Kashmir, India.*

### Abstract

Diabetes Mellitus Type 2 (T2DM) is a complex, non-communicable disease. It is the biggest cause of death in children under the age of five in the world. Inflammatory cytokines have been shown to increase insulin resistance and, as a result, T2DM. The goal of this study was to look at the involvement of inflammatory mediators such as Tumor Necrosis Factor (TNF-) and White Blood Cells (WBCs) in mobilizing biological molecules, particularly those of an immunological origin and its possible role in the Insulin resistance. This study included 520 participants, 260 of whom had T2DM and 260 of whom were healthy controls. TNF- $\alpha$  (Tumor Necrosis Factor- $\alpha$ ) concentrations in the blood were analysed using an ELISA approach, WBC count was determined using a Sysmax (Germany) hematology analyzer, and biochemical and immunoassay parameters were determined using fully automatic analyzers. T2DM patients had higher levels of potential pro-inflammatory cytokine (TNF-), as well as (WBC's).

In T2DM patients, TNF- has a significant ( $p < 0.001$ ) relationship with glycemic profile and insulin sensitivity when compared to healthy controls. Induction of inflammation and up-regulation of pro-inflammatory cytokines have long been thought to play a role in the pathophysiology of T2DM, and this work validates the favorable connection of TNF- with T2DM and hence insulin resistance and sensitivity. These can be used as early biomarkers in the diagnosis and prognosis of human diseases, such as Diabetes Mellitus. More research is needed to assist clinicians properly control and treat T2DM.

**Keywords:** Inflammation, biomarkers, cytokines, mediators, type 2 diabetes Mellitus

**Abbreviations:** T2DM

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NIL