

## Abstract

### Background :-

The prevalence of diabetes mellitus is rising dramatically over the recent decades elsewhere in the world, and hence representing a global health problem and an important cause of morbidity and mortality. This necessitates the implementation of valuable and effective diagnostic tools for the early detection and monitoring of the disease

A potential role for a naturally occurring monosaccharide, 1,5-anhydroglucitol in diabetic management has emerged. It is a major polyol in the human plasma. There is a suggestion that the measurement of serum level of 1,5 AG may be a sensitive marker for glycemic control. Also, it's serum concentration are changed rapidly in response to the alteration in the blood glucose level. Therefore, serum 1,5 AG level determination is proposed as a powerful predictor for postprandial hyperglycaemia and short-term glycaemic excursions

### :Objectives

The study was conducted to determine the serum 1,5- anhydroglucitol levels among patients with DM. Also, to investigate the alterations in the concentrations of 1,5-anhydroglucitol in serum with regard to values of fasting Serum Glucose and glycated hemoglobin. The other aim was to evaluate the changes in 1,5-anhydroglucitol serum levels among diabetic patients in accordance with the type of anti-diabetic therapy

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### :Materials and Methods

The present study included 76 patients with type 2 diabetes mellitus, 33 males and 43 females, 30-78 years of age. Height, weight, waist circumference, systolic blood pressure, and diastolic blood pressure

were measured for all patients. Blood samples were collected in a fasting state and used for the determination of 1,5- anhydroglucitol level, fasting serum glucose, glycated haemoglobin, lipid profile and creatinine. Results were expressed as the mean  $\pm$  standard deviation(  $\bar{x} \pm$  SD).

#### :Results

The study revealed that patients with type 2 diabetes have low serum 1,5-anhydroglucitol concentrations ( $3.62 \pm 1.56$ )  $\mu\text{g/ml}$ . The comparative male and female values were ( $3.69 \pm 1.55$ )  $\mu\text{g/ml}$  and ( $3.57 \pm 1.58$ )  $\mu\text{g/ml}$ . The vast majority of the included patients with type 2 diabetes (90.8%) were in a state of poor glycemic control, with 6.6% have a sub-optimal metabolic control. On the other hand, good glycemic was documented in 2.6 % of patients

There were no significant differences in serum 1,5 AG levels among various fasting serum glucose concentrations ( $P > 0.05$ ). Also, serum 1,5-anhydroglucitol concentrations showed no significant differences with regard to the status of glycaemic control ( $P > 0.05$ ). The type of anti-diabetic therapy did not significantly influence the serum 1,5-anhydroglucitol levels ( $P > 0.05$ )

#### :Conclusion

Type 2 diabetes mellitus patients have reduced serum 1,5 AG concentrations Thus, determination of serum 1,5-anhydroglucitol level could be a helpful as a screening test for the early diagnosis of diabetes mellitus. There were no significant differences in serum concentrations of 1,5- anhydroglucitol in relation to both fasting serum glucose and glycated hemoglobin value concentrations. Similarly, serum 1,5 AG levels showed no significant correlation with neither fasting serum glucose nor glycated hemoglobin levels