

ALTERATION OF MAGNESIUM, WHITE BLOOD CELLS COUNT AND SOME OTHER BIOCHEMICAL PARAMETERS IN IRAQI-MEN PATIENTS WITH DIABETES MELLITUS TYPE 2

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(Accepted 22 May 2018)

ABSTRACT : Diabetes mellitus (DM) is a disease widely prevalent throughout the world. Several studies have shown that the deficiency of magnesium (Mg) has negative impact on insulin sensitivity then on glucose homeostasis in diabetic patients type 2. White blood cells (WBC) count, a nonspecific marker of inflammation, also has been suggested in some cohorts to be associated with diabetes risk.

The purpose of study was to estimation and comparison of serum (Mg) (WBC) level in patients of type 2 diabetes mellitus and normal healthy controls along with changes in some other biochemical parameters such as urea, Hb and lipid profile to gather information about the degree of control of diabetes and its complications.

A study carried out on 50 subjects with type 2 diabetic patients (diabetic group) and 25 normal healthy controls (control group).

Serum magnesium level was found to be significantly lower in diabetic patients as compared to control group ($p \leq 0.05$). But (WBC) count was found to be significantly higher in diabetic group than control group ($p \leq 0.05$). The results also showed that the patients with diabetic have significant rise in serum cholesterol, triglycerides and low density lipoprotein ($p \leq 0.05$). The serum high-density lipoprotein (HDL-ch) cholesterol level was significantly decreased in diabetic group in comparison to control group ($p \leq 0.05$). We found in our study negative significant correlation between increasing (WBC) count and total cholesterol with decreasing magnesium levels.

Hypomagnesaemia and increased (WBC), serum cholesterol and triglyceride levels are probably, responsible for micro- and macro-vascular complications in diabetes.

Key words : Blood magnesium, WBC, diabetes Type 2, lipid profile.

INTRODUCTION

Diabetes mellitus is epidemic disease widely prevalent throughout the world. DM is a significant cause of mortality and morbidity worldwide (Kulkarni *et al*, 2014; Asha and Hiren, 2013). Economically, DM increases burden to country's health sector (Asha and Hiren, 2013). At present time globally about 200 million people are suffering from diabetes and expect this number will be 300 million in 2025 (Kulkarni *et al*, 2014). Some microelements evaluated as therapeutic and potential preventive measures for diabetic patients (Asha and Hiren, 2013). Magnesium is one of microelements, which has clinical importance, since Mg ion is required for many enzymatic reactions as co-factor (Chaudhary *et al*, 2010). Low serum level has been associated with DM (Antin *et al*, 2014; Arpaci *et al*, 2015). Several studies have shown

that the deficiency of magnesium has negative impact on insulin sensitivity then on glucose homeostasis in diabetic patient type 2. Hypomagnesaemia impact on diabetic control and led to complications of DM. It was found that DM Type 2 subjects with hypomagnesemia were more prone for complications (Dasgupta *et al*, 2012; Kundu *et al*, 2013; Nimbalkar and Ajay, 2016). White blood cells (WBC) are a defensive cells present in the blood to combat the invader pathogens and increases in presence of inflammations. So, WBC is a nonspecific marker of inflammation. High white blood cells count have been found in diabetic patients whom with micro- and macroangiopathic complications. So, diabetic patients especially those whom with vascular complications are accompanied with inflammation (Barbora *et al*, 2002; Naredi *et al*, 2017). Also, lipid abnormalities are almost