

RED BLOOD CELL MORPHOLOGY AS A MARKER OF OXIDATIVE STRESS
IN TYPE 2 DIABETES AND EFFICACY OF ANTIOXIDANTS AS ADD ON
THERAPY TO STANDARD TREATMENT– A RANDOMIZED, OPEN LABEL,
COMPARATIVE PILOT STUDY.

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ABSTRACT

OBJECTIVE:

To study RBC morphology (crenated edges with Heinz bodies) in Type 2 Diabetes as a marker of oxidative stress and efficacy of Antioxidants as add on therapy to standard treatment.

METHODOLOGY:

60 patients with Type2 Diabetes on metformin were randomized equally into study and control groups. 1ml of blood was collected, washed with saline, centrifuged and RBC suspension observed under high power microscope. Study group received Vitamin

C(500mg) and Vitamin E(400 I.U) once daily with standard treatment for 8 weeks.

Patients were assessed at 4 and 8 weeks for RBC morphology, fasting glucose, Hemoglobin, RBC count and Blood pressure.

RESULTS:

After 8 weeks, study group in comparison to the control group showed near complete restoration to normal RBCs and significant improvement in fasting glucose, Hemoglobin, RBC count and BP.

CONCLUSION

Free radical induced oxidative damage to RBCs leading to hemolysis is the main cause of anemia in these patients, hence RBC morphology can be used as a marker of oxidative stress in Type 2 diabetes. Adding Vitamin C and E to standard treatment is cost effective and novel approach in the management of these patients.

(Keywords: Type 2 diabetes, Oxidative stress, RBC morphology, Antioxidants)