

Role of Intestinal Microflora (*Lactobacillus Acidophilus*) in Phagocytic Function of Leukocytes in Type 2 Diabetic Patient

Abstract:

The prevalence of obesity, insulin resistance and type 2 diabetes has steadily increased in the last decades. In addition to the genetic and environmental factors, gut microbiota may play an important role in the modulation of intermediary phenotypes leading to metabolic disease. Infection is an important cause of morbidity and mortality in diabetic patients. Chronic hyperglycemia impairs host defense mechanism such as cell mediated immunity, polymorphonuclear leukocyte function, and antibody formation. So, we aimed to study the association between intestinal microflora (*Lactobacillus acidophilus*) count and phagocytic activity of polymorphonuclear leukocytes in humans with type 2 diabetes. The study included 20 type 2 diabetic patients with good glycemic control and 20 type 2 diabetic patients with poor glycemic control. In addition, 20 normal healthy subjects were included as normal controls. The fecal composition of *L. acidophilus* was detected using de Man Rogosa Sharp agar followed by further confirmation using the polymerase chain reaction technique. Phagocytic function of polymorphonuclear leukocytes was assessed using the phagocytosis index %. Fecal *L. acidophilus* count was significantly increased among uncontrolled diabetic patients, while the phagocytosis index % was significantly reduced among the same patients. In uncontrolled diabetics, a significant positive correlation was observed between fecal *L. acidophilus* count and HbA1c and a significant negative correlation between phagocytic activity and *L. acidophilus* count. In conclusion, type 2 diabetes is associated with compositional changes in fecal *L. acidophilus* especially in the uncontrolled diabetes. The levels of glucose tolerance or severity of diabetes should be considered while linking the level of intestinal microbiota with a phagocytosis index of leukocytes