This study was designated to estimate some clinical, biochemical and electrophysiological changes in patients with diabetic peripheral neuropathy, since the changes in these parameters are important in detecting, quantifying, identifying some possible risk factors and assessing patient’s response to treatment.

The study lasted from November/2008 to May/2009. The total number of study group was 225 persons who fell into 105 patients and 120 controls. The patients were classified into two groups according to the type of DM into: patients with type 1 DM (35 patients), their age range between 16-34 years and patients with type 2 DM (70 patients), their age range between 45-72 years. While control group was classified into diabetic patients without neuropathy (60 patients), their age ranged between 18-52 years and normal healthy control (60 persons), their age ranged between 18-70 years. The patients were recorded in Marjan’s teaching hospital center of diabetes and had monthly visits. The patients and control were examined by specialist doctors. The patients and controls enrolled in the study had undergone full assessment that included: clinical assessment (history and full examination), biochemical assessment (measurement of fasting blood sugar, serum selenium and vitamin E), measurement of glycosylated hemoglobin and electrophysiological assessment that included sensory and motor nerve conduction studies. Results of this study showed that fasting blood sugar and HbA1c level were higher in patients with neuropathy than controls with statistically significant differences (p<0.05). While serum selenium and vitamin E level show significant decrease (p<0.05) in patients with diabetic peripheral neuropathy than controls. Regarding electrophysiological changes patients had shown significant increase in latency for sensory and motor nerves and significant decrease in amplitude and conduction velocity for sensory and motor nerves in patients with peripheral neuropathy than controls.

The study found out that hyperglycemia due to deficiency of insulin or resistance to its metabolic effect is the most important and correctable risk factor for peripheral neuropathy, in addition to the role of hyperglycemia, oxidative stress also plays role.