

Predicting Microvascular Complications in Diabetic Patients

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Abstract

- Background** Patients with diabetes have an increased risk of developing microvascular complications, diabetes retinopathy, diabetic nephropathy and diabetic neuropathy, which if not predicted, early detected and treated, place a significant burden on individual's health and can reduce life expectancy.
- Objective** To determine the main risk factors (predictors) that associated with microvascular complications in diabetes aiming to construct a module that can detect microvascular complications depending on these predictors.
- Methods** A cross sectional descriptive study was carried out with 364 diabetic patients. Data about diabetes microvascular complications (retinopathy, clinical peripheral neuropathy, and nephropathy) and their potential risk factors were collected. Primary point was detecting the 0.01 level of significant association of risk factors with these complications to determine the predictors. These predictors were assessed for each individual's micro vascular complication and also as a composite outcome by logistic regression analysis.
- Result** Of the examined 364 diabetic cases, 174 (47.80%) patients were found with microvascular complications. Neuropathy, nephropathy, and retinopathy were detected in 66 (18.13%), 62 (17.03%), and 46 (12.64%) patients, respectively. Out of 12 potential predictors, only age, smoking habit, duration of diabetes, uncontrolled hyperglycemia, hypertension, and macrovascular complications found to be significantly associated with the presence of microvascular complications (p<0.01) as compared with patients who had no such complications. Uncontrolled hyperglycemia was the predictor in neuropathy and nephropathy groups, while diabetic duration was ranking first in retinopathy group.
- Conclusions** Microvascular complications in diabetic patients can be predicted, and avoided, by detecting the risk factors. Logistic regression equation provide suitable module for evaluation of these risk factors simultaneously.
- Key words** Microvascular complications, diabetes, logistic regression

Introduction

Diabetes mellitus (DM) is a global health problem, affecting all age groups. The greatest rate of rise is predicted to be in the Middle-East⁽³⁾, and as a country of the Middle East, Iraq is affected by this epidemic, with projected that this number will increase to at least 300 million by 2025⁽¹⁾. This epidemic further increases in the rates are seen after age relates in particular to type II diabetes, which 50, with a prevalence rate of 143.8 per 1000 accounts for around 90% of all diabetes cases. DM is a disease that is strongly associated with both microvascular complications, (including retinopathy, nephropathy, and neuropathy) and

