Background:

Type 2 diabetes mellitus has become epidemic worldwide since the past decades owing to the advancing age of the population, a substantially increased prevalence of obesity, and decreased physical activity, all of which have been attributed to a western lifestyle. Cardiovascular morbidity is a major burden in patients with type 2 diabetes mellitus, and electrocardiographic changes are commonly observed in patients with diabetes.

In Nigeria, no recent studies have been carried out despite the ever-increasing prevalence of type 2 diabetes mellitus.

Objective:

To describe the pattern of electrocardiographic abnormalities in type 2 diabetes seen in Jos University Teaching Hospital (JUTH).

The first 250 consecutive diabetic patients aged 30-85 years, who presented at the general outpatient and diabetic clinics were recruited for the study after giving their informed consent.

Patients with vascular heart disease or known structural cardiac disease (like ventricular septal defects or aortic stenosis, congestive heart disease and chronic respiratory disease like tuberculosis and asthma were excluded from the study, because their conditions could produce ECG changes not due to diabetics.

The electrocardiograms were subjected to the Minnesota coding and the patients were asked questions based on WHO multinational questionnaire adapted for an African population.

The data was analysed using the computer software of Epi info 2003. Two tailed $X^2$ tests were used to identify associations between covariates and ECG abnormalities. The independent effect of each potential risk factor for electrocardiographic changes were tested.

Results:

A total of 100 (40%) subjects had ECG abnormalities. Only 4 (1.6%) had major ECG abnormalities; 3(1.2%) were coded coronary probable (definite myocardial infarction), while 1(0.4%) was coded coronary possible (likely myocardial infarction). Ninety six (38.4%), had minor ECG abnormalities. By clinical classification, 22 (8.8%) had angina pectoris, which was suggestive of myocardial ischaemia.

Possible predictors for electrocardiographic changes in a multivariate model were fasting blood glucose ($p=0.1$), cholesterol level ($p=0.09$), hypertension ($0.01$) and duration of diabetes ($p=0.07$). Hypertension was significantly associated with electrocardiographic changes in type 2 diabetes, ($p=0.01$), and therefore predictive of ECG changes in type 2 diabetes.
Conclusion:

It was evident from the results obtained, that ECG abnormalities are found in type 2 Nigerian diabetics, but they are still relatively low compared with results from the Western world. The finding of a rising prevalence of myocardial infarction with associated ECG changes makes it necessary for all diabetics to be screened for abnormalities on first contact, so that the abnormalities can be diagnosed early for appropriate intervention.