SUMMARY

**Background:** Despite the presence of other diabetic complications, lung function has been found to be an independent predictor of mortality in subjects with diabetes mellitus. The approval of inhaled insulin has also renewed interest in the lung function of subjects with diabetes. Since ventilatory indices vary with race, it is relevant to determine the baseline values of Nigerian subjects with type 2 DM, the factors that determine it, as well as their eligibility for inhaled insulin.

**Aim:** To compare the ventilatory function of Nigerian subjects with type 2 DM to that of control subjects without DM. To determine the relationship between the ventilatory indices with the duration of diabetes, and the HbA1c. This study also aims to determine the eligibility or otherwise of Nigerian subjects with type 2 DM for inhaled insulin.

**Methodology:** 101 subjects with type 2 DM were recruited from the LUTH diabetes clinic and were age, gender, and body mass index matched to 104 control subjects without DM recruited from among the LUTH staff. PEFR, FEV₁, FVC and FEV₁/FVC% were measured for both groups. HbA1c was also assessed for the DM subjects to determine the glycemic control.

**Results:** At baseline, study subjects and controls were similar in terms of matching criteria. The mean age of the study subjects in years was 46.11 ±7.28 while that of the controls was 45.14 ±7.95 (P value= 0.38). There were 53.5% females in the study group and 52.9% in the control group (P value= 0.95). The mean BMI in kg/m² of the study subjects was 28.29 ±4.54, similar to that of the controls of 27.21 ±4.75 (P value= 0.10).
Mean PEFR, FEV$_1$ and FVC were significantly lower in DM subjects compared to control subjects (P value=0.006, 0.02 and 0.03 respectively). The FEV$_1$/FVC% was not significantly different (P value= 0.86). In multivariate analysis, age was a significant determinant of PEFR (P value 0.04) and they had an inverse relationship. BMI was also a significant determinant of PEFR, FEV$_1$ and FVC also with an inverse relationship between them (P value= 0.01, 0.001, 0.002 respectively). Duration of diabetes was another significant determinant of FEV$_1$ also with an inverse relationship between them (P value= 0.02). HbA1c level did not have a significant effect as a determinant of any ventilatory index. 84% of the DM subjects had FEV$_1$ values above 70% of normal.

**Conclusion:** Subjects with type 2 DM have reduced ventilatory function compared to subjects without DM. Age, BMI and duration of diabetes are the significant determinants of ventilatory function. Glycemic control over a short period as measured by the HbA1c does not have a significant effect on the ventilatory function. Inhaled insulin is a treatment option for Nigerian subjects with Type 2 DM since more than two thirds of them who meet the selection criteria (non smokers and no chronic lung disease) are eligible for the use of inhaled insulin based on their FEV$_1$. 