Objective: To determine the relationship of time of day of administration of antihypertensive medication to cardiovascular complications in hypertensive adult Nigerians.

Study Design / Setting: A randomized controlled clinical trial involving 181 patients 18 years and above referred from the Out patient departments of the Jos University Teaching Hospital, Jos.

Methods: Subjects were randomized into 2 treatment groups of morning (10a.m.) and night time (10p.m.) dosing time of medication. Information on patients history and physical examinations as well as laboratory investigations at baseline including electrocardiography (ECG), Echocardiography and Urinalysis for proteinuria and microalbuminuria were obtained. Patients were followed up for 12 weeks and had ECG and Echocardiography repeated for both morning and night time dosing group of administration of antihypertensive medication.

Result: There was a significant difference in the diastolic blood pressure, mean arterial pressure and left ventricular mass between the morning and the night time group at the end of twelve weeks. (T stat =15.5 and P = 0.0001) for the diastolic blood pressure, for mean arterial pressure (T stat =10.8 and P =0.001) and that for LVmass was T stat =13.77 and P < 0.0001 . LV mass was also found to be significantly lower amongst the women in both groups than men at the end of the study period. There was no significant improvement of the E/A ratio in the night time compared with the day time dosing group: Mean Δ E/A = -0.05 ± 0.27 and Mean Δ E/A = -1.93 ± 10.6 respectively.
**Conclusion**: Night time administration of antihypertensive medication significantly positively affects Diastolic BP, Mean arterial pressure and LVmass. Systolic blood pressure in this study tended to be relatively more reduced for the group taking medications at night (10p.m.). The mean change in E/A ratio tended to be better with the morning dosing group.