

# UNIVERSITY OF ILORIN



**THE ONE HUNDRED AND TWENTY SIXTH  
(126<sup>th</sup>) INAUGURAL LECTURE**

**“THE CHOICE IS YOURS BUT THE  
BURDEN IS OURS”**

**BY**

**KATIBI, IBRAHEEM ADEOLA  
MB,BS. (Zaria), MBA. (Ilorin), MD. (Glasgow), Cert.  
(Harvard), FWACP. (W/Afr), FACC. (USA).  
Professor of Medicine, College of Health Sciences.**

**Thursday, 28<sup>th</sup> March, 2013**

**This 126<sup>th</sup> Inaugural Lecture was delivered under  
the Chairmanship of:**

The Vice-Chancellor  
**Professor Abdul Ganiyu Ambali**  
DVM. (Zaria), M. V. Sc., Ph.D. (Liverpool), MCVSN  
(Abuja)

**28<sup>th</sup> March, 2013.**

Published By:  
**The Library and Publications Committee**  
**University of Ilorin, Ilorin, Nigeria.**

Printed by  
**Unilorin Press,**  
**Ilorin, Nigeria.**



**PROF KATIBI, IBRAHEEM ADEOLA**  
**MB,BS. (Zaria), MBA. (Ilorin), MD. (Glasgow), Cert.**  
**(Harvard), FWACP. (W/Afr), FACC. (USA).**  
**Professor of Medicine, College of Health Sciences,**  
**University of Ilorin, Ilorin. Nigeria.**



### **Courtesies**

The Vice-Chancellor,  
The Deputy Vice-Chancellors,  
All other Principal Officers of the University,  
Provost, College of Health Sciences,  
Deans and Directors, particularly the Dean, FCS,  
Professors and other members of Senate,  
Chief Medical Director, University of Ilorin Teaching  
Hospital,  
Members of Kwara State Executive and Security Council,  
My Lords, Spiritual and Temporal,  
All other Invited Guests,  
Other members of University of Ilorin Community,  
Members of the fourth realm of power,  
Distinguished fellow Alumni of the University of Ilorin,  
Ladies and gentlemen.

### **Preamble**

“Well begun is half done” This proverb is traceable to the famous Greek Philosopher, Aristotle, who lived between 384 and 322BC. Putting it in another way, the beginning is supposedly half the whole. In defiance to this age-long maxim, my journey in life is better captured by the saying “Badly begun could translate to well done”. Putting it succinctly and differently, albeit with the same meaning, a happy ending doesn’t always start with a good beginning and where a man is coming from doesn’t determine in whole, where he is going to end up.

I was born here in Ilorin into the ancient and respectable KATIBI family about forty-five years ago, a family renowned for her Islamic/Arabic erudition and scholarship. Indeed, literarily translated, KATIBI means a writer or scholar. As if there is a deliberate effort to sustain

the dream and passion of the forefathers, today, there are at least five Doctoral degree holders and several *huffāz* or *hafiza* (Quranic memorizers) amongst the descendants of the KATIBI family.

Mr Chairman Sir, I grew up as a child not knowing my mother because she had succumbed to pregnancy and child birth-related complications about 2 years after I was born. I could not recall knowing what she looked like or having emotional attachment to her but I take solace in the comments by her acquaintances, that her son could not have turned out otherwise because she was so nice, kind-hearted and cheerful. With the permission of the Chairman, may I crave your indulgence to recite *Suratu Ikhlāas* jointly in honour of my late Mother, Madam Maimunat Mustafa Katibi Nee Sambo.

With her demise, I was passed from one auntie to the other and later my grand-mother. Everybody's present is the product of his or her cumulative past. No wonder, I grew up to become independent-minded very early in life, quality which earn me the respect and respectability of many friends, colleagues and associates later in life.

Again, another case of bad beginning as I joined my father to attend Okela Moslem Primary School, Ikare Akoko, Ondo State. From there, I proceeded to attend Lennon Jubilee High School initially and later, Agolo High School, Ikare Akoko. All of these are community schools and I belonged to the foundation set of students. This notwithstanding, I gave a good account of myself in the High School such that I not only got appointed as a School Prefect but also came out as the best graduating student in 1985. Indeed, I represented my school in inter-school science quiz competition and our team won the first position for my Secondary School. This marks the

commencement of translating the bad beginning to well done.

I have always wanted to be a doctor. Indeed, my nickname in the Primary and Secondary Schools was “Doctor”. This desire arose from a personal experience in Primary School while I was on hospital admission for a febrile illness. Every morning, I marveled at the arrival of a particular individual to my hospital ward, usually immaculately dressed with a clean white over-all and something hanging around his neck. Few minutes before his arrival, everybody in the ward would have been running helter-skelter to get one thing or the other in place or putting finishing touches to preparation, including the nurses, ward attendants, patient relations, hospital pharmacists and administrators. The entry of the personality is usually heralded by a pin-drop silence in the ward with the fierce and tough-looking nurses on their feet as the man approaches their table to say “Good morning”. Good morning Doctor is usually chorused as the answer.

### **Introduction**

Today’s Inaugural lecture is deliberately titled “**The choice is yours but the burden is ours**”. As individuals, we made and continue to make our choices, whether freely or imposed as we shall come to see in the course of this lecture. The consequences of the choices constitute a collective burden on us all, either as members of a closely linked and inter-related community or as citizens of the same nation or as citizens of the larger world or as medical professionals with the unfortunate herculean task of “clearing the mess”.

Mr Chairman Sir, It is germane to define **Choice** and **Burden** at this juncture in order to guarantee that the

pilot, cabin crew and the passengers are all on-board the flight just before the plane begins to taxi along the tarmac. According to Encarta Dictionaries, choice is defined as the act of choosing or the decision to choose something or somebody or one thing or course of action in preference to others. Sometime, choice is also considered to be the power to choose, the selection process, the best or the most desirable of the options and most importantly, the chosen alternative. On the other hand, burden is a difficult or worrying responsibility or duty or load. In my own contextualization, burden can be economic, social, political, moral, spiritual, physical, psychological, emotional and even professional. No wonder therefore that “**the choice is yours but the burden is all ours**”.

Over the past one and half decades or so, my research focus has been on the subject of hypertension, its investigations, treatment and complications. Again, *the choices are yours but the burden is ours*. I sleep hypertension, I dream hypertension, I wake up hypertension, I eat hypertension, I drink hypertension, I work hypertension 24/7, I live hypertension but I pray not to die of hypertension as a result of the burden imposed on me by hypertension. Beside hypertension, I have also made modest scholastic contribution to the subject of Diabetes mellitus during my brief stint as the Consultant-in-charge of the Diabetology Clinic of the University of Ilorin Teaching Hospital (UITH) Ilorin (Katibi et al, 1999; Katibi et al, 2003; Katibi et al, 2003; Katibi et al, 2004; Katibi et al, 2006; Katibi et al, 2006 and Katibi et al, 2007). This modest contribution earned me the honorary membership of the American Diabetes Association by invitation in 2004. This apart, Hypertension and Diabetes mellitus are closely associated such that 30-50% of diabetic patients are

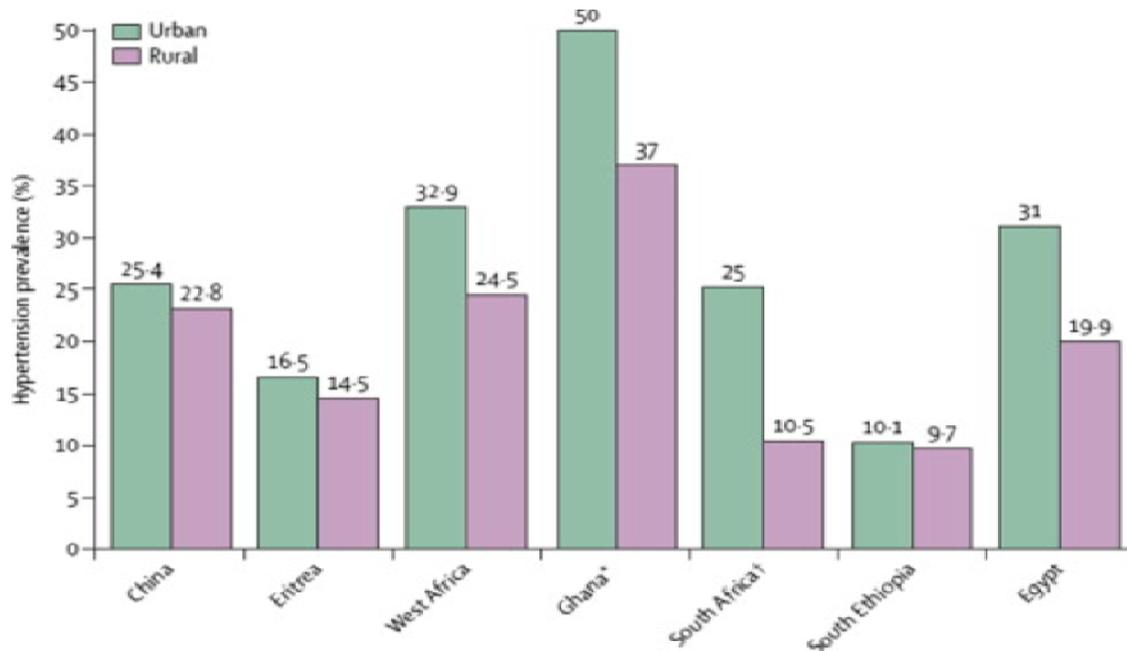
also hypertensive (Katibi et al, 2003). Indeed, Diabetes mellitus has long been recognized as a very important risk factor for cardiovascular disease. Besides, co-existence of hypertension and Diabetes mellitus predisposes the sufferer to increased risk of developing complications such as stroke and heart attack.

I have also contributed few tranche of publications on the subject of health care financing and National Health Insurance Scheme (NHIS), the latest being an invited review article published in 2012 edition of the *Savanah Journal of Medical Research and Practice* (Katibi, 2003 and Katibi, 2012).

Hypertension, simply put, is abnormally high blood pressure (BP). Technically, it can also be defined as that level of BP where the benefit (minus the risks and cost) of action outweighs the risks and cost (minus the benefits) of inaction (Kaplan et al, 2001). In absolute terms, Hypertension has been universally defined as systolic BP 140mmHg and above and diastolic BP of 90mmHg and above. More recent clinical trials with sufficient power and length of follow-up have demonstrated incontrovertibly that there is a somewhat increased risk of developing undesirable complications from BP even at lower levels, particularly in the presence of other cardiovascular risk factors. No wonder therefore, the coining of such terminologies as optimal, normal and high normal BP (Chobanian et al, 2003).

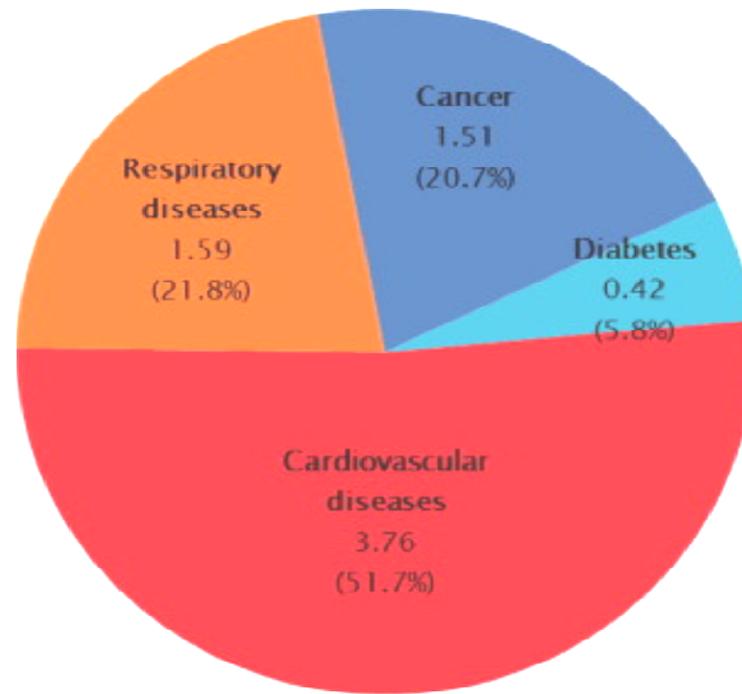
Hypertension afflicts well over a billion people worldwide and is seen in all nations of the world (Chobanian et al, 2003 and Lopez et al, 2006). 19.3-34.8% of Nigerians are reported to live with hypertension translating into a total figure of about 40million people (Hendriks et al, 2012; Ogah et al, 2012). It is no respecter

of race, gender or age as illustrated in Figure 1 below. Cardiovascular diseases, of which hypertension takes the lion share in Nigeria are a leading cause of death and disability today accounting for over 17.3million deaths annually worldwide (Laslett et al, 2012). Indeed, hypertension-related diseases or cardiovascular diseases as a whole is the number one killer today accounting for about 30% of causes of death worldwide. Eighty percent of these deaths occur in the middle and low income countries, of which Nigeria is one (Lozano et al, 2012). World Health Organization reports that suboptimal BP accounts for over 60% and about 50% of stroke and heart attack cases respectively (Bloom et al, 2011).



**Figure 1: Prevalence of hypertension in some countries of the world. J Am Coll Cardiol. 60(25): Suppl S: S1-S49.**

The World Bank has already alerted that until and unless the war against Non Communicable Diseases, cardiovascular diseases inclusive is elegantly fought and won, all attempts at improving the world poverty indices would remain a mirage because of the toll on overall productivity of nations (WHO, 2002; Kim, 2012). Economists have projected that the cost of not investing in cardiovascular disease prevention and treatment could amount to as much as 47trillion dollars worldwide in the next 25years. The choices were freely made by hypertensive patients but the burden of crippling effect on the economy and development is borne by us all. The toll on the economy as a result of cardiovascular diseases for the low and middle income countries is illustrated in Figure 2 below.



**Figure 2: Economic loss (US\$Trillion) as a result of NCD in low and middle income countries. J Am Coll Cardiol. 60(25): Suppl S: S1-S49.**

Genesis of hypertension is sometime traceable to the free choices we make during spouse selection, pregnancy, delivery, events in early childhood and adult life. *The choice is yours but the burden is all ours.*

It has been reported that offspring who have both parents hypertensive have a 27.2% increased risk of becoming hypertensive than the general population. When only one of the parents is hypertensive, the risk is reduced

to 5.7%. Similarly, siblings and twins of hypertensives are also at increased risk of hypertension (Ehret et al, 2011). The import of this is that hypertension tends to run a familial course and perhaps, the risk could be reduced through proper pre-marital counseling and choice of partner. Unfortunately, the choice of partner is individual's but the resulting burden of hypertension is for all of us. After all, love is said to be blind.

It has also been reported that babies from mothers who consumed a lot of alcohol during pregnancy or who suffered intrauterine growth retardation (IUGR) or birth asphyxia have increased propensity to develop hypertension in later life. These are all somewhat decisions of the mother or a function of quality of antenatal care or standard of delivery which in turn depends on the decisions taken by the couple, either directly by themselves or on their behalf. Again, the choice is that of the couple for their offspring while the burden in later life is ours as a whole.

What about the place of badly treated skin infections in childhood resulting in inflammation of the glomerulus of the kidneys through cross immune reaction (Acute Glomerulonephritis) or chronic drug ingestion in childhood (Lawlor et al, 2005)? Both these conditions affect the kidneys and could ultimately result to hypertension.

Excessive salt consumption and obesity have been directly linked to the level of BP (He et al, 1999; He et al, 2009). Unfortunately, the quantity of salt in our foods or whether we add additional salt on the table to food already served or our body weight is largely our own decision. Globally, obesity is on the increase and the prevalence has literally doubled over the past decade with women and Americans maintaining the lead. Obesity is estimated to

account for 2.8million deaths annually. Some people specifically have questionable preference for food items having dangerously high salt content such as bacon, baked beans, cracker biscuits, corned beef, bread and so on. In an earlier work, we reported that only 41.1% of hypertensive patients seen at the University of Ilorin Teaching Hospital were aware of the adverse effects of salt consumption on hypertension and only a third of the patients had well controlled BP (Katibi et al, 2010).

One of the reasons for inadequate BP control is non-compliance to drug therapy which we have observed to be as high as in 40% of our hypertensive patients (Katibi et al, 2004). Incidence of adverse effects from medications such as cough as was reported in up to 20% of those on Captopril and Lisinopril in Ilorin could be a plausible reason for non compliance (Katibi et al, 2005). The educated, the rich, the high and the mighty are also guilty of this. Bill Clinton, former President of the United States said on Larry King Live on the phone from his hospital bed while awaiting coronary bypass surgery after suffering a heart attack; “I have also been treating the high Cholesterol and then I stopped the medicine because I got my Cholesterol down low. And, I had in the past, a little (Blood pressure) problem which I treated and then I got it down” The resultant poorly controlled hypertension is therefore a burden, on not just the individual, but the entire nation.

In the United States of America alone, hypertension and cardiovascular diseases cost about three hundred billion dollars annually to treat (Roger et al, 2012). This is in excess of the total Gross Domestic Product (GDP) for Nigeria. This cost is expected to triple in the next fifteen years unless specific preventive measures are adopted. Assuming Nigerian population is about 40% of that of the

United States of America and all the cases of hypertension and hypertension-related diseases are to be adequately treated, it is estimated to cost about 20 trillion naira annually to effectively and qualitatively manage these cases. This is about four times the total annual budget for Nigeria for the Year 2012. With our standard of treatment in Nigeria, it is estimated that about half a trillion Naira will be required to treat cases of hypertension alone. This is far in excess of the total budget for health in 2012. With appropriate choices by individuals, the huge sum could be put into other productive uses such as power, education and infrastructural development. Again, **the choice is yours while the burden is all ours** as far as hypertension is concerned.

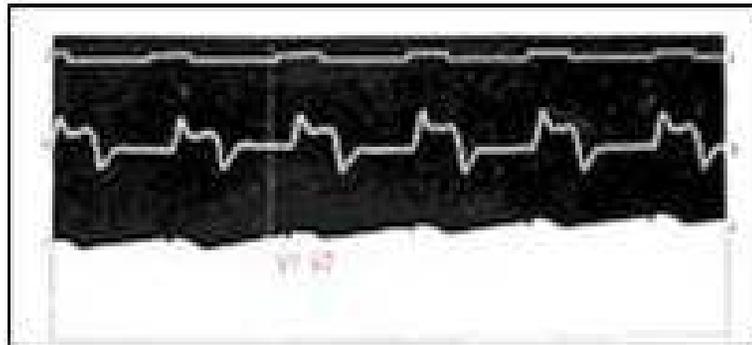
### **Investigations in Hypertension**

One of the most important investigations in patients with hypertension is electrocardiography. Others are serum Urea, electrolytes, creatinine, lipid profile and fasting blood sugar; Urinalysis; echocardiogram. There could be additional investigations where secondary causes of hypertension are suspected. Electrocardiography is the most readily available and cheapest cardiovascular investigation worldwide. Hundreds of millions of ECGs are reported to be recorded annually.

In the course of my career, I have researched extensively into the ECG of Nigerian, British and Chinese populations. Indeed, our publication in this regard is the only one of its kind worldwide comparing normal ECG databases in the three populations. I have also published extensively on the effect of hypertension on the ECG of Nigerians (Katibi et al, 2003; Katibi et al, 2003 and Katibi et al, 2005). Again, **“the choice is yours but the burden is**

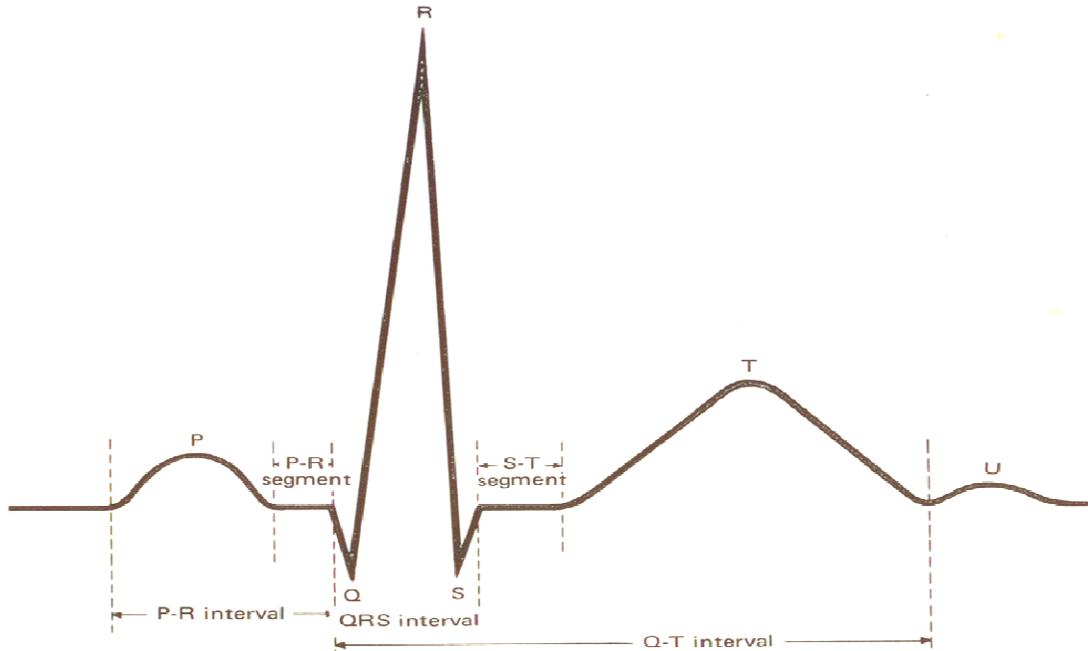
ours”. It suffices to serve you first with what our findings were with normal ECGs before discussing what abnormalities there could be on the ECGs of hypertensive patients.

Even though the first ECG was recorded in humans by Augustus Waller in 1887, the first report of normal ECG amongst Nigerians was only available in the year 1966, almost a century later. This was not until about half a decade after automated computer application had been introduced into the analysis and interpretation of the ECG (Waller, 1887 and Seriki et al, 1966). The first reported research on automated analysis of normal ECG in Nigerians did not come until the year 2010 and by the Inaugural lecturer of today in collaboration with Prof Emeritus Peter Macfarlane of the University of Glasgow (Katibi, 2010). The first ECG in humans as recorded by Augustus Waller and normal ECG nomenclature are shown in Figures 3 and 4 below respectively.



**Figure 3: Augustus Waller’s recording of human ECG. (Journal of physiology. 1887; 8: 229.**

Using normal ECGs, different computer programmes have been developed to aid ECG interpretation and have wide clinical application, albeit in the Western world. Unfortunately, Caucasian-derived computer programmes have been blindly applied to the Negroes for the purpose of ECG interpretation even though there are racial differences in ECG appearances (Katibi et al, 2010).



**Figure 4: The nomenclature of the normal ECG waveform (From Electrocardiography: Practical applications with vectorial principles. Ed. Chung KE).**

ECGs were recorded in 1,500 apparently healthy participants from Ilorin West, Ilorin East, Ilorin South and Asa Local Government areas of Kwara state at no cost to them. Ordinarily, this would have cost 7.5million Naira using the unit price for a private hospital. This massive measurable benefit to the underserved population in Kwara state is probably what informed the later support received from Kwara state Government which shall be acknowledged in due course.

**Rhythm:**

Up to 12.5% of the normal population may show abnormal rhythm ranging from occasional premature ventricular contractions (PVCs), premature atrial contractions (PACs), first or second degree heart block or bundle branch block, even though they are usually asymptomatic.

**Heart rate:**

The normal heart rate in Nigerians is age and sex specific. It is generally higher in females and the older age group as illustrated in Figure 5. It ranges between 52 and 105 beats per minute in males and 52 and 112 beats per minute in females. Generally, normal Nigerians have higher heart rates than either the British or Chinese population, with the Chinese having the lowest.

**P Wave:**

A broad bifid P wave is occasionally a normal variant. Similarly, notching of the P wave could be seen in up to 10% of apparently healthy Nigerians. The duration of the P wave in normal Nigerians could be up to 0.14sec as against the traditional cut off of 0.12sec. Using automated analysis, higher values than 0.12sec have also been described in the

Chinese and British populations. Even then, Nigerians generally have broader P waves than their British or Chinese counterparts.

The upper cut off for the amplitude of the P wave in apparently healthy Nigerians could be up to 0.32mV and 0.30mV in males and females respectively (Katibi et al, 2010).

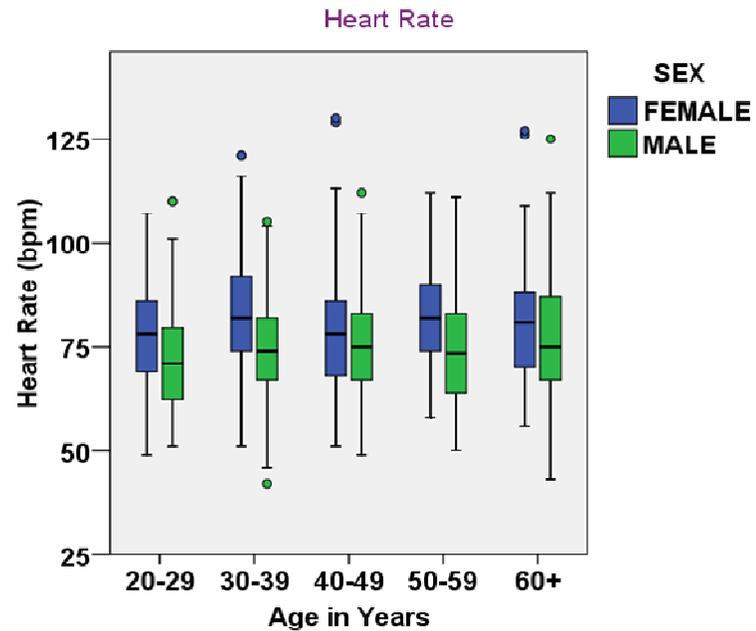


Figure 5: Box and whisker plots of heart rate by age group and sex in apparently healthy Nigerians.

**Q Waves:**

Q waves are generally less common in the ECG of apparently normal Nigerians compared with the Caucasian counterparts. It is most commonly seen in leads aVL, V6 and V5 in all races. It is also rarest in leads V1 and V2. Q wave duration is generally longer in the Chinese population while Nigerians manifest highest amplitudes compared with the British and Chinese. Q waves are most prevalent in the British population (Katibi et al, 2010).

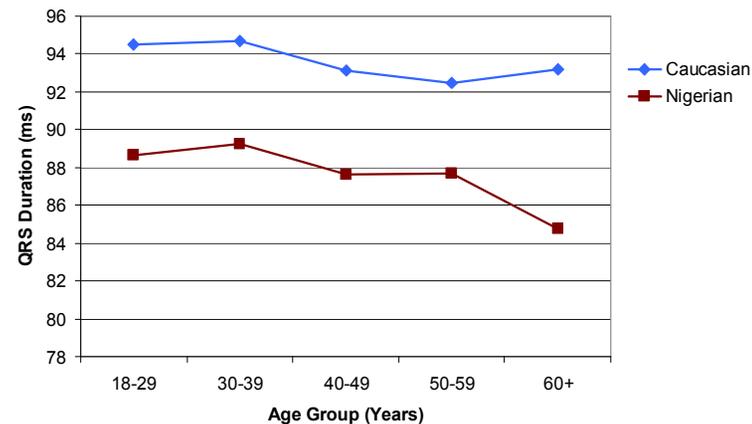
**R AND S Waves:**

The R and S wave amplitudes represent the fulcrum around which most of the ECG diagnostic criteria for ventricular hypertrophy or chamber enlargement revolves. Unfortunately, the upper cut-off for these amplitudes are mostly higher in Nigerians than in Whites. This underscores the desirability of local adaptation of such criteria such as the Araoye's criteria for left ventricular hypertrophy (Araoye, 1984). Indeed, R wave amplitudes are age, gender and lead-specific such that application of a single cut-off across the board for everybody could be misleading –hence the wisdom in computer application for automated analysis. In males, S wave amplitudes decline in depth with advancing age as is the case in other racial groups. In females however, S wave amplitudes increase in depth with advancing age except in lead III unlike what is observed in other racial groups.

**QRS Duration:**

Araoye had stated that there was no age, sex or racial difference in the durations of ECG waves and intervals, including the QRS duration. A single range of normal QRS duration of 0.06 to 0.11s was reported for all Nigerians.

However, using automated methods, we have reported significant age, gender, lead and racial variations in the duration of QRS complex (Katibi et al, 2010). The 96th percentile range is 0.07-0.11s. Indeed, over 90% of Nigerians had a QRS duration between 0.07 and 0.10s. This is similar to the observation among Nigerians by earlier reporters and that of Macfarlane et al and Chen et al among British and Chinese populations respectively (Macfarlane et al, 1989; Chen et al, 1989). Correlation between body weight and QRS duration ( $r=0.18$  at  $P<0.00001$ ) is also worthy of note. Racial difference in QRS duration is illustrated below.



**Figure 6: Comparative mean QRS duration in males from Nigerian and Caucasian populations.**

#### **ST Segment:**

Peter Macfarlane, Emeritus Professor of Electrophysiology and his team, working from the same laboratory where I utilized my Commonwealth Fellowship, had suggested and

was subsequently adopted worldwide that the same upper limit cut-offs for ST segmental elevation for the diagnosis of acute myocardial infarction cannot be used for both male and female because of gender difference (Macfarlane et al, 2001). On the basis of our new collaboration, we have discovered, yet another oversight which is the fact that the same STj cut-offs cannot be applied to all races as normal Nigerians have higher STj amplitudes than either the British or Chinese population (Katibi et al, 2010).

**PR AND QT Intervals:**

Normal limits of the PR Interval (PRI) ranged between 0.11-0.22s in males and females respectively. The variation across age groups, heart rates and gender was of no statistical significance. There is also racial difference in PRI with the Chinese having the highest interval followed by Nigerians and the British the least.

The QT interval varies a great deal with heart rate with a correlation factor of -0.78 between it and heart rate. Hence the need for corrected QT interval (QTc) using different formula with that of Hodges showing the least correlation factor of 0.15. The 96<sup>th</sup> percentile range for QTc (Hodges) is 0.36s to 0.43s and 0.36s to 0.45s in males and females respectively.

We have reported the fact that QTI is longer in patients with Chronic heart failure secondary to hypertension than in the general population and related this prolonged QTI to increased propensity to abnormal cardiac contractions (arrhythmias) and worse clinical outcome (Katibi et al, 2008 and Katibi et al, 2008).

Mr Vice Chancellor Sir, I seek your permission to jump this boring statistical and mathematical cardiology. For those who are enjoying it, do not worry as this is the

subject of my Doctor of Medicine (MD) thesis from the University of Glasgow, a copy of which has been deposited at the University of Ilorin Library through the Immediate Past Vice Chancellor. In practical terms, what have I been able to achieve?

1. Establishment of the first electronic database of normal ECG in any Black African population worldwide.
2. Free quick cardiovascular health screening for the underserved people of Ilorin West, Ilorin East, Ilorin South and Asa local government areas of Kwara state.
3. Receipt of items worth about three million Naira donated by University of Glasgow towards the execution of this project. Worthy of note is the fact that the Atria 6100 ECG machine which was among the items donated is the only one of its kind in Nigeria.
4. Based on the quality of the research work and the commitment displayed by the lecturer of today, University of Glasgow accepted the thesis based on this work for the award of the degree of Doctor of Medicine (MD) of University of Glasgow. It is worthy of especial mentioning that this is the only Doctor of Medicine possessed by any regular staff member of the College of Health Sciences today. The opportunity would not only exist for other academic staff members to be supervised locally for their MDs, but the award has also complied with the dictum of the National Universities Commission that every University lecturer must have a postgraduate Doctoral degree qualification, irrespective of faculties.
5. Towards the payment of the tuition fees for the MD, Kwara state government awarded a scholarship to the lecturer to the tune of two million Naira (N2,000,000:00)

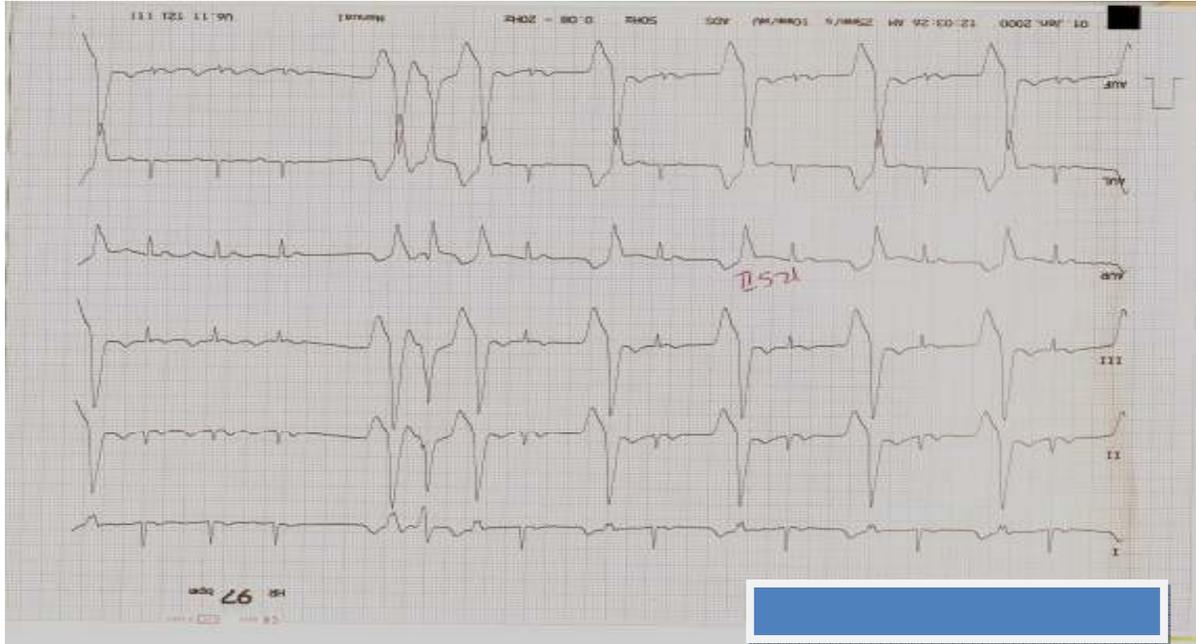
6. Award of Commonwealth Fellowship to the lecturer which was utilised at the University of Glasgow and Glasgow Royal Infirmary, the biggest and most advanced hospital in Scotland. Aside from the prestige of being a Commonwealth Scholar, the award is worth about four million naira.
7. Another proposal is now being packaged to pioneer the establishment of the first Central Core ECG laboratory in Nigeria and perhaps, West African sub-region.

**What about ECGs recorded over longer duration of time?**

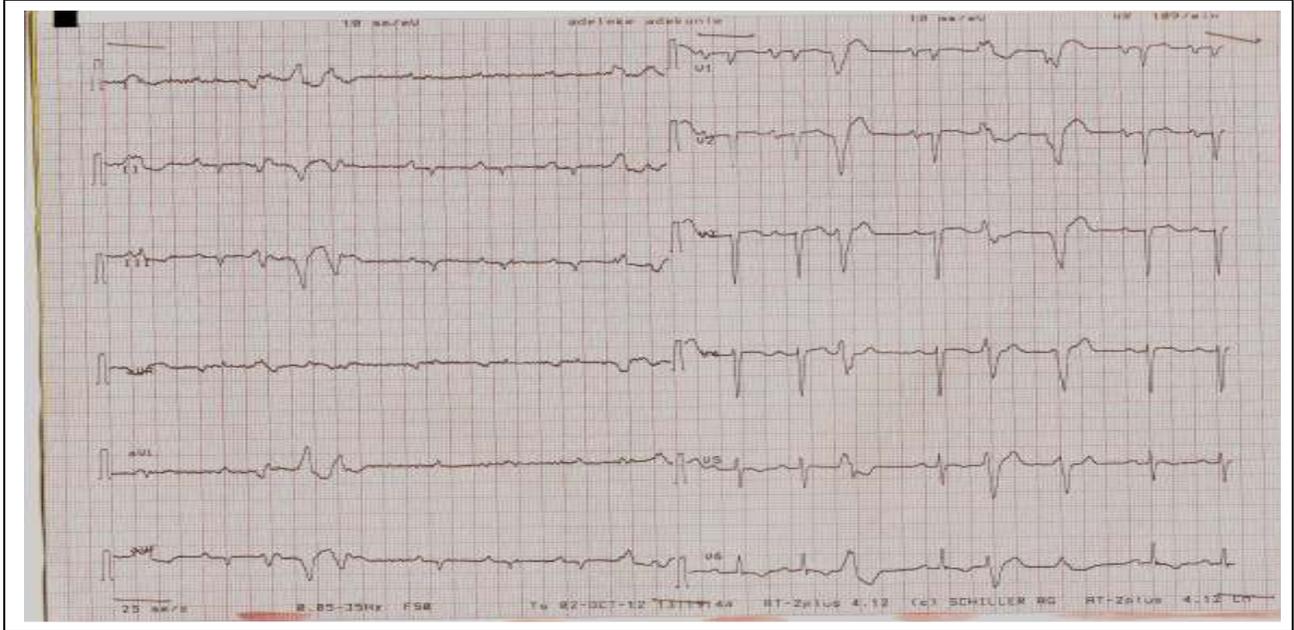
Mr Chairman Sir, the regular resting ECG is recorded just over 3-5seconds. You would agree with me that certain abnormalities of the heart, particularly arrhythmias (abnormal contractions) occur so infrequently that they are bound to be missed over the short time. Hence the need to record, using specialised ECG (Holter ECG) over a 24 hour period or even longer as the case may be. With humility, the first publication from Nigeria on Holter ECG was done by our group in 2006 (Katibi et al, 2006). We reported that chest pain in patients with hypertension was the commonest indication after palpitation of unknown aetiology. Premature ventricular contractions (PVC) was the commonest type of arrhythmia, occurring in up to 60% of the referrals. Low grade 2 type of PVC was the commonest variety (40%). The essence of searching for these hidden arrhythmias is that some of them are harbinger to sudden death as illustrated in Figure 7 below. Perhaps, they could be nipped at the bud if recognised on time.

Forming the thrust of my thesis for the award of the Fellowship of the West African College of Physicians, we have documented varied prevalence of ECG Left

ventricular hypertrophy (20-70%) and Left atrial enlargement (20-50%) depending on the diagnostic criteria applied. (Katibi et al, 2003 and Katibi et al, 2005). Figure 8 below is an example of ECG recorded from an hypertensive patient showing some of these abnormalities. We have also studied ECG findings in patients with long standing hypertension complicated with heart failure with further attempts at correlating the ECG findings with echocardiogram (Katibi et al, 2008). Currently, Drs Gbadamosi and Bello, trainee Cardiologists have taken a step further to correlate ECG and Echo findings with cardiac biomarkers and even determine the impact on long term clinical outcome.



**Fig 7: ECG in hypertensive patient showing non-sustained ventricular tachycardia, harbinger for sudden death.**



**Figure 8: Bizarre ECG in an hypertensive patient with multitude of abnormalities.**

Stroke is about the commonest and most devastating complication of hypertension in our environment. Worldwide, over 16million new cases of stroke occur annually with hypertension detected on admission in up to 80% of them. We have reported that about 30% of those afflicted with stroke and who managed to get to the hospital would still die within the first month of hospital admission (Katibi et al, 2007).

Heart attack certainly ranks higher than stroke in the developed world as a complication of hypertension. Unfortunately, due to westernised lifestyle and diet, urbanisation and relative affluence, the scourge of heart attack is now on the increase. Currently, I am working with other cardiologists nationwide with a view to establishing a National registry for heart attack. If you cannot measure it, you probably cannot improve it.

Hypertension is both a cause and consequence of Chronic Kidney Disease (CKD). Besides, CKD alters the threshold for the control of BP. Patients with CKD would ultimately require dialysis or kidney transplantation costing about one hundred thousand Naira monthly or three million Naira respectively. Again, **the choice is yours but the economic burden is all ours!**

As listed earlier on, echocardiogram is one of the diagnostic armamentarium in the management of hypertension. We have also pioneered the establishment of the normal reference for echocardiographic left ventricular mass in Nigerians. On the basis of our earlier observation that Negroes and indeed Nigerians generate higher voltages on the normal electrocardiogram, we hypothesised that perhaps, the ventricular muscle mass for Nigerians is thicker than that of their Caucasian counterpart. As such, the normal reference for left ventricular mass in Whites

should not and cannot just be extrapolated for Nigerians. A new normal reference for left ventricular mass per height of 54.7-123.5g/m and 63.3-171.6g/m in females and males respectively was therefore proposed but larger multicentre study to validate this further is still required in Nigeria (Katibi et al, 2001).

Beyond defining the new normal reference for echocardiogram, we have also established the difference in the LV geometry or anatomical structure of the heart in patients afflicted with hypertension and related this to the functional dynamics and better still, long term clinical outcome between male and female (Katibi et al, 2008, Katibi et al, 2009 and Katibi et al, 2010).

We also made modest contribution to the understanding of the peculiarities of other forms of heart failure in Nigerians, particularly Peripartum cardiomyopathy and Thyrotoxic heart failure (Katibi 2003; Katibi et al, 2004; Katibi et al, 2010). We re-echoed earlier observation that Peripartum cardiomyopathy is commoner in Nigeria than in most other parts of the world and that the clinical outcome may not be as bad, particularly following full restoration of left ventricular function.

#### **Additional Contribution to Scholarship**

I have made significant and landmark contribution to scholarship culminating in my appointment as a Professor of Medicine, basis of which is today's inaugural lecture. I have co-trained and co-supervised Eleven Cardiologists, seven of whom have completed the training, working in different parts of Nigeria today and with some of them in this hall; Drs Kolo P.M. Adamu U.G. Busari A.O. Fasae A. Alfa J. Aigbe I.F. Ogunmodede A. Gbadamosi A. Oloko A.A.Y. Bello and Ojo .

Furthermore, I have been a peer reviewer/external assessor to several, local, National and International Journals including but not limited to; Nigerian Medical Journal, Nigerian Postgraduate Medical Journal, Nigerian Journal of Medicine, Savannah Journal of Medical Research and Practice, Nigerian Journal of Clinical Practice, Tropical Journal of Health Sciences, Nigerian Medical Practitioner, Annals of African Medicine and Saudi Medical Journal.

### **Contribution to the Community**

It is one thing to be endowed, it is another to have the opportunity to serve wherein the real talents in the individual could manifest. With all sense of humility and gratitude to God, I have been privileged to serve at ward, Local Government, District, State, National and International levels without necessarily occupying a political office.

I have been Physician to President of this great country, Governors, God father of Governors, Ministers, Speakers and members of National and State Houses of Assembly, Commissioners, high ranking judicial officers, royal fathers, spiritual leaders, Vice Chancellors, Professors, Permanent Secretaries and the general populace. Which of His favours can we deny? In all, I have found the experience quite revealing, rewarding and fulfilling. While I may not have made money serving the top echelon of the society, I certainly gained robust insight into the thought process of this class of people. I served as the Visiting Consultant Physician to Kwara State Government House in 1999, an appointment which was the opportunity cost for the academic attainment we are celebrating today. I also served as a member of Kwara State Advisory Council for Prerogative of Mercy in 2002.

At the National level, I was a member of the Ministerial technical committee on the coverage of the vulnerable group in the National Health Insurance Scheme (NHIS) in 1999. I also served as a member of the Ministerial implementation committee on NHIS in 2001 under the chairmanship of Late Prof Ishaya Audu. Two members of that Committee are today State Governors in Edo and Ondo States. I became the secretary of the National Committee of Medical Elders under the auspices of the Federal Ministry of Health and Chairmanship of Professor Emeritus Umaru Shehu in 2004. Through this feat, I have had the uncommon privilege of working closely and directly with three Professors Emeritus, two of whom actually supervised my thesis.

Earlier, I had served as the National Assistant Secretary General and National Treasurer of the Nigerian Medical Association in 1998 to 2000 and 2000 to 2002 respectively. I was on the Management Board of the National Eye Centre, Kaduna between 2000 and 2004, during which I stepped aside to take up Honorary Clinical Research appointment at the University of Glasgow, UK. I have been on the board of my Alma mater, Agolo High School, Ikare Akoko since 1996 till date.

At the local level, I have served two terms as the President of The Coremates, Ilorin ([www.ilorin.org](http://www.ilorin.org)) while also quietly awarding scholarship to orphans and the indigent in my local ward. I served as the Immediate past Chairman of University of Ilorin Teaching Hospital Research and Ethics Committee which is adjudged to be one of the best in the country([www.uitherc.org](http://www.uitherc.org)).

I have regularly participated in health education radio and television programmes for close to three decades,

ever since I was the Publicity Secretary of Ahmadu Bello University Medical Students Association.

I have also served as the HOD Medicine, University of Ilorin Teaching Hospital and Acting HOD Medicine of the University of Ilorin.

### **Future Challenge**

The next challenge is the establishment of a Central Core ECG laboratory in Ilorin wherein the experience in Glasgow could be replicated. This could come from Teaching and Research equipment grant, World Bank STEP B grant, Tertiary education research fund or any other similar grants.

### **Recommendations**

#### **Governmental level**

1. There is the need to strengthen the department for Non Communicable Diseases in the federal ministry of health or outright setting up of a new agency for the control of NCD similar in status to PHCDA.
2. Policy regulation of alcohol consumption and cigarette smoking through heavy taxation, limited ban and restricted use in public places.
3. Policy regulation of quantity of salt in common staple food item like bread, rice etc.
4. Regulated importation or outright ban of highly salted food items such as bacon, baked beans, corned beef.
5. Universal coverage of all Nigerians by National Health Insurance Scheme (NHIS) as a way of guaranteeing access to basic cost effective health care services.

6. Improved spread, quality and staffing of primary health care facilities nationwide.
7. Empowerment of religious bodies/congregations, cooperative societies, road transport workers, barbers and other similar organisations and groups to screen for high blood pressure through basic training and provision of automated sphygmomanometer.
8. Provision of more recreational and sporting facilities in the community and working environment in order to encourage increased physical activity. For example, Pakata recreational facility, Adeta recreational facility, Eruda recreational facility, Okekura recreational facility and Adewole recreational facility.
9. Training and licensing of more health manpower, particularly community health officers and nurses.
10. Improved budgetary allocation to health and prudent management of available resources.
11. Improved funding for cardiovascular research in particular and health research as a whole as we pass through epidemiologic transitions.

### **Individual level**

#### **Diet:**

We must all learn to imbibe healthy eating habit. The golden rule is to eat most minimally, just to keep body and soul together rather than eating to full satisfaction or according to affordability. Fat should only constitute less than 30% of total calories consumed. Even then, total and saturated fat are better avoided. Fish, soya beans or vegetable oil is to be preferred to groundnut oil. The diet

should also be low in animal fat, butter, eggs and red meat. High fat food such as pastries, cakes, sweets, chocolate, sausages, crisps, hamburgers, hotdogs, french-fries and chips are to be avoided. Similarly, grilled, boiled, steamed or baked food is to be preferred. Fish and lean chicken are recommended preferentially to red meat. low salt diet (<5g of NaCl/day) is as important as drinking enough fluids regularly.

#### **Physical activity**

Physical activity as opposed to sedentary lifestyle is one of the ways to prevent hypertension and hypertension-related diseases. It is generally recommended to spend 35 to 40 minutes alternate days or most days of the week on exercise which could be as simple as brisk walking, jogging or playing one game or the other.

#### **Cessation of smoking**

Smokers should quit while non-smokers should endeavour not to start. Passive smoking is as important and dangerous as active one.

#### **Adequate treatment of hypertension and other associated illnesses**

Hypertension, Diabetes mellitus, Hypercholesterolaemia, Hyperuricaemia and CKD are all cardiovascular risk factors which often co-exist. Adequate control of these morbid conditions can only be accomplished through regular use of relevant medications and appointments with the doctor. More than 38% of our patients are on combination therapy which is the gold standard now as recommended by International Society of Hypertension with Calcium channel blockers assuming more prominent

role than before (Katibi et al, 2004). TREATMENT IS USUALLY FOR LIFE!

**Appropriate adaptation to stress of daily life**

Life without stress is as good as life without accomplishment. Our ability to handle most appropriately, the normal hustling and bustling of life is therefore what matters.

**Regular annual medical check-up**

This is advisable with or without medical complaints, particularly in those above the age of 40 years.

**Acknowledgements**

First and foremost, my gratitude goes to the Almighty God who is most deserving of all gratitude, not only for seeing me through this life from my endangered beginning but also for seeing me through the challenges in getting to the pinnacle of my career as the first Professor of Medicine from Ilorin emirate, the first Professor in Cardiology from Kwara State and one of the youngest Professors ever produced in University of Ilorin. The attainment of this feat has really humbled me such that I have had to re-dedicate myself to the service of God and mankind. No word can aptly describe my indebtedness to my late mother, who laboured without reward through pregnancy and puerperium but generated a critical mass of goodwill while alive to see me through childhood and adolescence. How I wish she is also seated in this auditorium today to see the fruits of her labour.

Special appreciation also goes to my father for never imposing anything on me in life and his abundant prayers. If wishes were horses, my father prefers that I

become a distinguished Mallam or Sheikh of a sort, particularly since my brother had gone to the University and was going to become a Pharmacist in his own thinking as an Imam-to-be. He had since taken consolation in the fact that while I touch people's lives in different parts of Nigeria, he takes the glory as the beneficiaries usually trace me back to him to express their appreciation. My elder brother has also been of immense support from inception till date, not in the least, for wise counsel and making sure I lacked nothing reasonably expedient all through my education.

My special thanks go to all my past and present teachers, as I am still being mentored till date. Especial mentioning must be made of the following amongst them: my Ghanaian Chemistry teacher in the secondary school, Late Mr Yaw Fobi, who made sure I earned an A1 in the subject; my secondary school principal, Chief M.B. Babalola who was a very strict disciplinarian, Principal of my School and who believed so much in me; Professor Emeritus Mathew Akinyemi Araoye, for always being there during my training and for impacting in me, the culture of hard work very early in my career; Professor Emeritus Peter Macfarlane of the University of Glasgow, UK for opening my eyes to the world of modern day electrocardiology and demonstrating to me good work etiquettes. I thank all members of staff of the Department of Medicine, University of Ilorin for creating the enabling platform through which I contributed to scholarship and in particular, Professor A.B.O Omotoso and Dr P.M. Kolo who held the forte during my frequent travelling around the world.

I also acknowledge Prof B.J. Bojuwoye for being the perfect gentleman that he is and Prof E.O. Okoro for

making me the only resident doctor to enjoy the privilege of having the duplicate key to his office in my early days in the department. .

I thank my In-laws, Dr and Prof(Mrs) Salawu, not only for being a good guardian while I was in the University but for also considering me worthy of being their son-in-law. .

I thank the Management and Governing Council of the University of Ilorin for finding me worthy of appointment as a Professor of Medicine, a position that qualifies me for today's inaugural lecture. Specifically, I would like to thank Professor Is-haq Olanrewaju Oloyede for being the only one who remembered to admonish me that I should minimize celebration but brace up for other levels of promotion which will soon come, when my 2003 promotion to Senior Lectureship was announced in 2005. Professors Y.A. Quadri, A.G.A.S. Oladosu, Sheu Jimoh and B.J. Bojuwoye's reassuring words over the years have been very soothing.

My especial thank goes to Professor Oba Abdulraheem, OFR who God used to secure my first appointment into the University of Ilorin, at a time that we had never met and in conjunction with Prof O.O. Fakeye, who believed so much in me as well. I am sure both of you would be delighted today that you stretched a little bit to accommodate me in the department. Similarly, I thank the entire management and staff of the University of Ilorin Teaching Hospital for the opportunity to manifest myself.

I thank members of my nuclear family, particularly my Darling wife, Dr Oludolapo Sherifat Katibi, Paediatrician and Dermatologist for fitting perfectly into my areas of deficiency like a jig-saw and for accepting me

just the way I am after several failed attempts to change me.

### **Conclusion**

I began this lecture with the quotation “Well begun is half done” and I would like to conclude by saying that I am only half done with my mission in life following my Professorial appointment. “I am still not all I should be. I am not yet where I should be. I have not yet learnt all I should learn. I have not yet achieved all I should achieve. I therefore aspire to the next level.”

## References

- Adamu UG, Aiyedun AT, Kabiru SB, Abdullahi AS, **Katibi IA**. (2010). The contribution of peripartum cardiomyopathy to heart failure hospitalization in a North-Western state of Nigeria. World Congress of Cardiology. China.
- Adamu UG, **Katibi IA**, Kolo PM, Opadijo OG, Omotoso ABO, Araoye MA. (2009). Relationship between left ventricular diastolic function and geometric patterns in Nigerians with newly diagnosed systemic hypertension. *Cardiovascular Journal of Africa*. Vol 20(3): Pg 173-8.
- Adamu UG, **Katibi IA**, Opadijo OG, Omotoso ABO, Araoye MA. (2010). Prevalence of left ventricular diastolic dysfunction in newly diagnosed Nigerians with systemic hypertension: A pulsed wave doppler echocardiographic study. *African Health Sciences Journal*. Vol 10(2): Pg 177-82.
- Akande AA, Okesina AB, **Katibi IA**. (2006). Model health care design for the management of type 2 diabetes in a tertiary health care facility. *Diabetes International*. Vol 14(1): Pg7-8.
- Araoye MA. (1984). The 12-Lead scalar ECG in Negroes I: Normal values. *Nig Med Pract*. 7: Pg 59-65.
- Bloom DE, Cafiero ET, Jane-Llopis E, Abrahams-Gessel S, Bloom LR, et al. (2011). The Global Economic burden of Non-communicable Diseases. Geneva: *World Economic Forum*.
- Chen CY, Chiang B, Macfarlane PW. (1989). Normal limits of the electrocardiogram in a Chinese population. *J Electrocardiol*. Vol 22: Pg 1-15.
- Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, et al. (2003). The Seventh Report of the

- Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure: the JNC 7 report. *JAMA* 289: Pg 2560-2572.
- Ehret GB, Munroe PB, Rice KM. (2011). Genetic variants in novel pathways influence blood pressure and cardiovascular disease risk. *Nature*. Vol 478 (7367): Pg 103-9.
- He FJ, MacGregor GA. (2009). A comprehensive review on salt and health and current experience of worldwide salt reduction program. *J Human Hypert*. Vol 23(6): Pg 363-384.
- He J, Ogden LG, Vupputuri S, Bazzano LA, Loria C, Whelton PK. (1999). Dietary sodium intake and subsequent risk of cardiovascular disease in overweight adults. *JAMA*. Vol 282: Pg 2027-2034.
- Hendriks ME, Wit FWNM, Roos MTL, Brewster LM, Akande TM, et al. (2012). Hypertension in Sub-Saharan Africa: Cross-sectional surveys in Four Rural and Urban Communities. *PLOS ONE* 7(3): e32638.doi:10.1371/journal.pone.0032638: Pg 1-10.
- Ibraheem Katibi**, Elaine Clark, Brian Devine, Suzanne Lloyd, Peter W Macfarlane. (2010). Comparison of QRS duration in African Blacks and European Caucasians. *Computing in Cardiology*. Vol 37: Pg701-704.
- Kaplan NM. (2001). Systemic hypertension: mechanisms and diagnosis. In: Libby P, Bonow RO, Mann DL, Zipes DP. Braunwald's Heart Disease. *Textbook of cardiovascular Medicine*. 6<sup>th</sup> ed. Philadelphia, Pa: Saunders Elsevier. Chap 40.
- Katibi IA**, Adenle AD. (2003). Correlation between Left ventricular mass and electrocardiographic variables

among hypertensive Nigerians. *Nigerian Journal of General Practice*. Vol 7(2): Pg 5-8.

**Katibi IA**, Adenle AD. (2003). Prevalence of electrocardiographic evidence of Left Ventricular Hypertrophy (LVH) among hypertensive patients as seen in Ilorin, Nigeria. *Nigerian Medical Journal*. Vol 44 (1): Pg 7-9.

**Katibi IA**, Akande AA, Bojuwoye BJ, Okesina AB. (2003). Blood sugar control among fasting Muslims with Type 2 Diabetes mellitus in Ilorin. *Nigerian Journal of General Practice*. Vol 7(2): Pg 17-21.

**Katibi IA**, Akande AA, Salami AK.(2003). Metabolic syndrome in Type 2 Diabetes mellitus patients as seen in Ilorin, Nigeria. *Nigerian Journal of General Practice*. Vol 7(3): Pg 8-12.

**Katibi IA**, Akande AA, Salami AK.(2004). Lipid abnormalities among Type 2 Diabetes mellitus patients; our experience in Ilorin, Nigeria. *Tropical Doctor*. Vol 34: Pg 254-55.

**Katibi IA**, Beshir S, Mudashiru Z. (2006). Ambulatory 24 Hour Holter ECG among Nigerians, our experience at a referral cardiac centre in Lagos, Nigeria. *Nigerian Medical Journal*. Vol 47(2): Pg 25-27.

**Katibi IA**, Clark E, Devine B, Lloyd S, Macfarlane PW. (2010).Normal limits of the ECG in African Blacks. International Society of Computerized Electrocardiology. New Mexico.

**Katibi IA**, Macfarlane PW, Clark E, Devine B, Llyod S, Aiyedun S, Alaofin W, Omoneyin T. (2010). R wave amplitude in Normal Nigerians using debut automated analysis. International Congress on Electrocardiology. Lunds, Sweden.

- Katibi IA**, Olarinoye JK, Kuranga SA. (2010). Knowledge and practice of hypertensive patients as seen in a tertiary hospital in the middle belt of Nigeria. *Nigerian Journal of Clinical Practice*. Vol 13(2): Pg 159-162.
- Katibi IA**, Olarinoye JK. (2004). Antihypertensive therapy among hypertensive patients as seen in the middle belt of Nigeria. *Annals of African Medicine*. Vol 3(4): Pg 177-180.
- Katibi IA**. (2001). Beshir S, Mudashiru Z. Echocardiographic left ventricular mass in normal adult Nigerian population. *West African Journal of Ultrasound*. Vol 2: Pg 2-5.
- Katibi IA**. (2003). Nigeria's Health Insurance Scheme. *Africa Health*. Vol 26(1): Pg 12-14.
- Katibi IA**. (2003). Peripartum cardiomyopathy in Nigeria. *British Journal of Hospital Medicine*. Vol 64(4): Pg 249.
- Katibi IA** (2005). Reliability of the electrocardiograph in the assessment of left atria size, using echocardiograph as the reference. *Nigerian Journal of Cardiology*. Vol 2(1): Pg20-24.
- Katibi IA**. (2012). Nigeria's National Health Insurance Scheme: A critical reappraisal. *Savanah Journal of Medical Research and Practice*. Vol1 (2): Pg 1-6.
- Katibi IA**. An ECG recorded from a 31 year old healthy Nigerian lady. (2010). Macfarlane PW, Lawrie TDV. The normal electrocardiogram and vectorcardiogram. In: Macfarlane PW, Lawrie TDV, editors. *Comprehensive electrocardiology*. Oxford (UK): Pergamon Press. Pg. 25.

- Katibi IA.** Establishment of normal limits of the electrocardiogram in healthy nigerians using automated methods. MD Thesis. University of Glasgow; 2010.
- Katibi IA.** Peculiarities of the electrocardiogram in Africans: Making the right diagnosis in the emergency department. (2011). In; Balogun MO. *Handbook of Emergency Medicine*. In Press.
- Kim JY. (2012). Data for better health-and to help end poverty. *Lancet*; Pg380: 2055.
- Kolo PM, Omotoso ABO, **Katibi IA**, Sanya EO, Adamu UG, Fasae AJ, Aigbe IF. (2008). Gender differences in Left Ventricular size and Geometric pattern of Hypertension subjects. *The Cardiology*. Vol 4(2-4): Pg 11-15.
- Kolo PM, Opadijo OG, Omotoso ABO, Balogun MO, Araoye MA, **Katibi IA**. (2008). Prevalence of QTc Prolongation in adult Nigerians with Chronic heart failure. *West African Journal of Medicine*. Vol 27(2): Pg 69-73.
- Kolo PM, Opadijo OG, Omotoso ABO, **Katibi IA**, Balogun MO, Araoye MA. (2008). Prognostic significance of QT interval prolongation in adult Nigerians with chronic heart failure. *Nigerian Journal of Clinical Practice*. Vol 11(4): Pg 336-341.
- Laslett LJ, Alagona P.Jr, Clark BA, Drozda JP. Jr, Saldivar FNP, Wilson SR, et al. (2012). The Worldwide Environment of Cardiovascular Disease: Prevalence, Diagnosis, Therapy, and Policy Issues. *J Am Coll Cardiol*. 60(25): Suppl S: S1-S49.

- Lawlor DA, Smith GD. (2005). Early life determinants of adult blood pressure. *Current opinion in Nephrol and hypert.* Vol 14(3): Pg 259-64.
- Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJ (2006). Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data. *Lancet*; 367: Pg1747-1757.
- Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, Aboyans V, et al. (2012). Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global burden of Disease Study 2010. *Lancet*; 380: Pg 2095-2128.
- Macfarlane P, Clark E, Devine B, Lloyd S, **Katibi IA**. (2010). Normal limits of STj in African Blacks-Implications for STEMI. International Congress on Electrocardiology. Lunds, Sweden .
- Macfarlane PW, Lawrie TDV. (1989). The normal electrocardiogram and vectorcardiogram. In: Macfarlane PW, Lawrie TDV, editors. *Comprehensive electrocardiology*. Oxford (UK): Pergamon Press; Pg 407-57.
- Macfarlane PW. (2001). Age, sex and the ST amplitude in health and disease. *J Electrocardiol.* 34: Pg 535-541.
- Ogah OS, Okpechi I, Chukwuonye II, Akinyemi JO, Onwubere BJC, Falase AO et al. (2012). Blood pressure, prevalence of hypertension and hypertension related complications in Nigerian Africans: A review. *World J Cardiol.* 4(12): Pg 327-340.
- Olarinoye JK, Kuranga SA, **Katibi IA**, Adeniran OS, Jimoh AAG, Sanya EO. (2006). Prevalence and

- determinants of erectile dysfunction among people with Type 2 Diabetes in Ilorin, Nigeria. *Nigerian Postgraduate Medical Journal*. Vol 13(4): Pg 291-296.
- Olokoba AB, Bojuwoye BJ, **Katibi IA**, Ajayi AO, Olokoba BL, Braimoh KT, Inikori AK. (2007). Cholelithiasis and type 2 diabetes mellitus in Nigerians. *South African Gastroenterology review*. Vol 5(3): Pg 14-17.
- Opadijo OG, **Katibi IA**. (1997). Diabetic Autonomic Neuropathy: Study of 92 Non-Hypertensive patients with Diabetes mellitus. *Nigerian Medical Practitioner*. Vol 34(5/6): Pg 71-75.
- Roger VL, Go AS, Lloyd-Jones DM, Benjamin EJ, Berry JD, Borden WB et al. (2012). Heart disease and stroke statistics – 2012 Update. A report from the American Heart Association. *Circulation*. Vol 125: e2-e220.
- Salami AK, **Katibi IA**. (2004). Tri-iodothyronine(T3-Toxicosis) induced heart failure: A case report. *The Tropical Journal of Health Sciences*. Vol 10: Pg 27-29.
- Salami AK, **Katibi IA**. (2005). Angiotensin Converting Enzyme Inhibitors (ACEI)-associated cough; A prospective evaluation in hypertensives. *Annals of African Medicine*. Vol 4(3): Pg 118-121.
- Seriki O, Smith AJ. (1966). The electrocardiogram of young Nigerians. *Am Heart J*. Vol 72(2): Pg 153-157.
- Wahab KW, Ojini FI, Sanya EO, Olokoba AB, **Katibi IA**, Omotoso ABO. (2007). Correlation of admission blood pressure with 30-day outcome in acute

ischaemic stroke in Nigerians. *Nigerian Medical Journal*. Vol 48(3): Pg 58-61.

Waller AD. (1887). A demonstration on man of the electromotive changes accompanying the heart's beat. *J. Physiol*. Vol 8: Pg 229-234.

World Health Report 2002: Reducing risks, promoting healthy life. Geneva, Switzerland: *World Health Organisation*, 2002. <http://www.who.int/whr/2002>.