African Journal of Tropical Medicine and Biomedical Research (AJTMBR)

The Journal is the Official Publication of the College of Health Sciences, Delta State University, Abraka, Nigeria.

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The *African Journal of Tropical Medicine and Biomedical Research* is a multidisciplinary and international journal published by the College of Health Sciences, Delta State University of Abraka, Nigeria. It provides a forum for Authors working in Africa to share their research findings on all aspects of Tropical Medicine and Biomedical Sciences and to disseminate innovative, relevant and useful information on tropical medicine and biomedical sciences throughout the continent. The journal will publish original research articles, reviews, editorials, commentaries, short reports, case reports and letters to the editor. Articles are welcome in all branches of medicine and dentistry including basic sciences (anatomy, biochemistry, physiology, pharmacology, psychology, nursing etc) and clinical sciences (internal medicine, surgery, obstetrics and gynaecology, dental surgery, child health, laboratory sciences, radiology, community medicine, etc). Articles are also welcome from social science researchers that document the intermediating and background social factors influencing health in countries of Africa. Priority will be given to publication of articles that describe the application of the principles of primary health care in the prevention and treatment of diseases.

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EDITORIAL MESSAGE

African Journal of Tropical Medicine and Biomedical Research is the official Journal of the College of Health Sciences, Delta State University, Abraka. This is the maiden edition of the journal and it is our hope and aspiration that manuscripts accepted for publication will undergo extensive copy editing, typesetting and reference validation to provide the highest publication quality possible.

Our aim is to produce a high quality Journal that will stand the test of time. The Journal welcomes articles reporting on original research of both quantitative and qualitative studies. Comprehensive review articles on all aspects of tropical medicine and biomedical sciences will also be given a pride of place.

With the birth of this Journal, our gestational period as a Medical School is now over and we look forward with enthusiasm to the period of growth and maturation. This Journal will serve as an avenue to show case to the world our scientific contribution to knowledge as a Medical School.

It is our intention to maintain the high standards both in quality and consistency. Finally, let me congratulate the editorial board members and most especially Dr. Lawrence Omo-Aghoja for a marvelous input into this edition. Please keep the flag flying.

Prof. P.S. Igbigbi M.D, FASN

Editor-in-Chief

Editorial

Breast Milk, Breast-feeding and HIV Infection – The Pitiable Story of Developing Nations

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Establishment of lactation and breast-feeding is a major physiological event of the puerperium, and there is conclusive evidence of short- and long-term benefits in favor of breast-feeding compared to artificial feeds[1]. It is now part and parcel of antenatal care (ANC) to educate women on the advantages of breast-feeding. The advantages of breastfeeding include providing the baby with balanced nutritional requirements, protection against infection, aids proper neurological development and protection against the development of atopic illnesses. Other benefits are conferment of protection against the development of breast cancer by women who breast-fed their children, contraceptive benefits (lactational amenorrhea method), encourage excellent mother-baby bonding and it is cheap amongst others[1,2].

From the foregoing, it can be clearly appreciated why the "baby friendly initiative" which has the ten cardinal steps to successful breastfeeding was given birth to by a global consensus in 1990 at Florence in Italy following the famous *innocenti declaration*[3]. It is pertinent to note that breastfeeding was the rule in developing and less industrialized nations of the world prior to the advent and popularization of artificial feeds by the developed and industrialized nations. Believing that the Western and more powerful nations of the world are always correct in their assertion, poor nations of the world abandoned their golden culture of breastfeeding for the more expensive and challenging practice of the use of the artificial feeds for their newborn and infants. Part of the challenges the developing nations had to contend with beyond the excruciating effect of cost, were high level of poor hygiene, lack of technical know how to properly sterilize the utensils and feeding apparels as well as lack of clean and safe water. This predisposed to infection in the newborn and infants, with a significant proportion succumbing to diarrheal ailments[2,4].

In the late 80s emerging reports and accumulating evidence showed undoubtedly that breastfeeding was superior to artificial feeds and that indeed, there were numerous benefits of breastfeeding to both mother and baby[5,6]. It was clearly proven that the newborn could exclusively depend solely on breast milk for the first four months of life. The Western world and developed nations then drummed up campaign and spearheaded global advocacy activities in favor of breastfeeding with particular focus on developing nations and poor resource setting. They off course started to teach the poor nations their golden culture that was hastily abandoned for the once thought flamboyant artificial feeds of all sorts produced by the developed nations.

As this turn of events was gaining popularity, the world was hit by the strange illness that has now been fully classified as human immunodeficiency virus infection. Available evidence indicates that breastfeeding is one of

the foremost modes of vertical transmission of this disease[7]. Again under the direction of the developed and powerful industrialized nations, the World Health Organization recommended across board that developing nations should continue to breastfeed their newborn and infants in face of HIV positive status[4,5,8,9]. Their argument was that because of ravaging poverty and high level of infection associated with artificial feeding in the developing nations, that the newborn and infants were likely to succumb to diarrheal diseases and infection within the first two years of life, and therefore should be breastfed despite the extremely high risk of becoming infected with HIV infection. Indeed most of the childhood infections with HIV/AIDS that followed the advent of the disease were as a result of this unfair recommendation. Justifiably, in our considered opinion, this was unfair because in developing nations there are rich and affluent communities that should have been noted and in developed nations there are also extremely poor resource settings similar to the situations in developing nations. One would therefore have expected that this generalized recommendation at the outset should have been restrictive and applicable to resource poor settings in both developed and developing nations.

However, scholars and researchers[10,11] from developing nations were quick to document the negative public health implications of this recommendation on their populace and they had to spearhead the advocacy for the modification of this sweeping recommendation on breastfeeding in face of HIV infection. The global response was however in the affirmative to that of the advocates from developing countries and modifications were made to the earlier policy on breastfeeding. The recommendations took cognizance of the factors that are likely to predispose or increase the predisposition to vertical transmission of HIV infection. The recommendations included – no breastfeeding with the sole use of artificial feeds, and where this is not possible then the following were advised – short term exclusive breast-feeding with early weaning and or prolonged breastfeeding with low dose antiretroviral therapy for mother and baby, pasteurization of the breast milk and the use of a wet nurse[12]. Clearly evidence from African studies supports these recommendations – a recent randomized clinical trial of breast-feeding-mixed feeding versus formula feeding in Kenya found that formula feeding prevented 44% of infant infections and was associated with a significantly improved survival. Prolonged breast-feeding increases the risk of a woman giving HIV to her baby by about 14 percent[13]. In the same Kenyan study - At 24 months, 20 percent of formula-fed babies became infected with HIV, compared to 36 percent of breast fed babies[13]. In a South Africa - HIV transmission was 12 percent higher in breast-fed babies than in formula-fed ones at 15 months. Additionally, 36 percent of babies who received mixed feeding were reported infected compared to about 25 percent of those who were exclusively breast-fed and 19.5 percent of formula-fed babies[15].

A major challenge that has to be contended with in no breastfeeding situation is that women who bottle-feed may fear questions about why they don't use their breast milk. Birthing classes and other programs directed at pregnant women and new mothers actively promote breast-feeding. Many HIV-positive women have had to lie or disclose their status to get counselors, teachers, social workers, neighbors, friends and relatives to stop pressuring them to breast-feed. Often these activities take place in a group, which can cause a woman to become concerned about her confidentiality being

violated, or about feeling social isolation when everyone else is having a different experience. An HIV-positive woman who breast-feeds and discloses that choice could possibly face a legal threat of having her children removed by authorities. From the foregoing, it is obvious that the decision not to breastfeed is not an easy one and the challenge of likely stigmatization is probably worse in developing countries where interference in marital life from the society is commonplace. Interestingly, the pendulum of evidence is swinging in the direction of the fact that most people irrespective of geographical location who know of an HIV-positive woman's status believe she has made the safest choice for her child when she formula feeds, they may overlook giving her an opportunity to express her anger or sadness about not being able to breast feed her child.

There has been great debate about what women who have HIV, or those who live in high-risk areas, should be told about HIV and breast-feeding. Some argue that HIV-positive women should be given all the information and be encouraged to make the best decision they can based on the realities of their own situations. Others worry that people are getting mixed messages and that the confusion is dangerous. People on all sides of the debate want to do what's best - but there are still disagreements on what that is. However, for developing nations and low resource settings, we advocate that the message should be along the standard and contemporary WHO (2010) recommendation of managing breastfeeding issues of the newborn and infants of HIV positive women as enunciated above.

Ultimately, the only way to end mother-to-child transmission of HIV is to prevent women becoming infected in the first place through education, empowerment and promotion of condoms. All women need access to HIV testing and counseling, but this is especially true for pregnant women and new mothers. Those who test positive face a very difficult decision about how to feed their babies. What they need is accurate information, clear guidance and ongoing support to succeed with their chosen strategies.

In conclusion, breastfeeding continue to remain a major physiological event of the puerperium and there is conclusive evidence of short- and long-term benefits in favor of breast-feeding compared to artificial feeds for the newborn and infants. Existing evidence indicates that breastfeeding is one of the foremost modes of vertical transmission of this HIV disease and that if breastfeeding and feeding options of the newborn is appropriately handled; the chance of vertical transmission is substantially reduced. We therefore advocate that the earlier recommendation that developing countries be encouraged to continue to breast feed in face of a positive HIV status is best confined to the pitiable niche of the archives of history and what the message should be is that HIV-positive women should be given all the information and be encouraged to make the best decision they can based on the realities of their own situations. Therefore, the WHO standard recommendations on breastfeeding should always be the gospel in both developed and developing nations.

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Knowledge, Attitude and Practice of Contraception among Abortion Seekers in Benin City

Aziken Michael E[1], Akubo Kenneth O[1], Osemwenhka PA[1], and Ande Adedapo BA[1]

ABSTRACT

Background. In Nigeria, 12% of pregnancies end in induced abortion amounting to over 610,000 induced abortions annually, with a ratio of 25 per 1000 women of reproductive age. Majority of these abortions are unsafe. Effective contraception would no doubt prevent most unwanted pregnancies and the consequences of unsafe abortions.

Aim. To assess the knowledge, attitude and practice of contraception among abortion seekers in Benin City and to propose ways of improving knowledge and utilisation of contraception, in order to prevent unwanted pregnancies.

Methodology: Cross sectional questionnaire based survey of abortion seekers in selected clinics in Benin City from January 1st-June 30th 2006.

Results A total of 423 women who sought abortion were interviewed. Majority (52.2%) were within the 21 – 25 age range. Majority of the women were single (82.3%), Christians (95.3%) and had secondary education (48.9%). Most of the women sought abortion on the ground that they were schooling (35.2%) or single (32.2%) while 16.8% believed abortion was a method of contraception A significant proportion (65.7%) of the women were aware of a modern method of contraception and 50.1% had ever used a modern method of contraception but only 35.9% were currently using a modern method of contraception. Post-abortion counselling did not seem to improve uptake of contraception.

Conclusion and Recommendation.

This study showed that the majority of abortion seekers in Benin City are youths and they do so because they are not ready for motherhood and although they have fair knowledge of contraception, the majority were not practicing contraception at the time of the study. There is an urgent need to step up contraceptive counseling skill for health workers for effective dissemination of information on contraception. There is need to overhaul the family health education system, including the integration of Planned Parenthood into health care delivery system at the primary health care level.

Keywords: Induced abortion, knowledge, contraception, attitude, practice

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Introduction

Induced abortion has long been, and is still being practised in all continents and by all people as a method of fertility control.[1] Annually, about 26-53 million induced abortions are performed worldwide and of these, 20 million are unsafe.[1] In Nigeria, as in other parts of the world, women experience unplanned pregnancies.[2] About 9% of

pregnancies in Nigeria result in unplanned births and 12% end in induced abortion.[3] Some of these women seek termination of their pregnancies by safe medical methods if possible, but often by whatever available means.[3]

Induced abortion is illegal in many countries while in other countries it is either liberal or restricted.[1] In Nigeria, it is a crime to perform or to obtain an abortion except to save a woman's life. There are penalties for any woman who seeks abortion or who attempts to cause her own miscarriage.[2] Consequently, most women(60%) who seek abortion patronize unqualified practitioners who offer quick and cheap, but unsafe abortions.[3,4] Available Statistics show a high prevalence of induced abortion(over 610000 annually) in this country.[1,5]

Haemorrhage and sepsis from unsafe abortion is a major cause of maternal mortality in developing countries. Available statistics show that about 70,000 women die from complications of abortion annually and of these, 23,000 occur in Africa alone with young and poor women(15-24 years old) being most affected.[6,7] Abortion complications account for 40% of maternal deaths in Nigeria.[1] Other complications of abortion like chronic pelvic inflammation/chronic pelvic pain; infertility, Asherman's syndrome, ectopic pregnancy, placenta praevia and cervical incompetence are sources of long-term reproductive morbidity in women.[1]Contraception is the voluntary prevention of pregnancy and it entails the interruption of the chain of events that lead to conception.[8] There are several modern methods of contraception that are available including emergency contraceptives which gives the woman a second chance of preventing an unwanted pregnancy.[8-10]

In spite of the numerous modern means of contraception available, the prevalence of induced abortion is still high in Nigeria. The setting of conventional Family Planning Clinics may discourage certain group from utilising the facilities.[7] Review of literature showed that contraceptive use among adolescents is low,[11,12] and that adolescents tend to seek abortion rather than contraception.[13] In southern and western Nigeria, only about 30% of sexually active adolescents use contraceptives, which is lower than reported rates in developed countries.[14,15] Further education has been reported to be an independent predictor of contraceptive knowledge,[16] yet recent data showed that even Nigerian undergraduates have limited or incorrect information about emergency contraception.[17] Only 39% ever used contraception (mostly condoms) and 34% had had an abortion. In all, about 58% knew about emergency contraception but of these, only 18% knew the correct time frame in which emergency contraception must be taken to be effective.[17]

This study therefore, aims to assess the contraceptive knowledge, attitude and practice among abortion seekers in Benin City. A secondary objective is to determine reasons why women seek abortion, and to propose ways of enhancing contraceptive uptake in order to prevent the occurrence of unwanted pregnancies

Materials and Methods

This is a cross – sectional study among abortion seekers in Benin City. The study covered a period of 6 months from January 1st to June 30th 2006.

The sample size was estimated with the formula $n=z^2pq/d^2$ assuming the population of abortion seekers in Benin City was greater than 10,000, where, n=the desired sample size, z=confidence limit of the survey results which

is set at 1.96 (corresponding to 95% confidence level), p= prevalence of abortion in Benin city, q=1.0 – p(or proportion of the population not seeking abortion) and d = degree of accuracy (set at 0.05). this amounted to a required sample size of 384. Pretested questionnaires were distributed to patients presenting with abortion-related complications at the University of Benin Teaching Hospital. At the same time, a list of the private clinics known to be offering abortion services in Benin City were compiled through direct discussions with these patients. The list Comprises 15 private clinics and hospitals. Five of them were then selected from sample frame by a blind and sample random dip procedure. Subsequently, the estimated sample size was equally shared to the 5 selected private clinics and hospitals. An interviewer to all the clients seeking abortion services at the study centers as they came administered the pre-tested questionnaires. Relevant data on age, marital status, parity, educational level, reasons for termination of pregnancy, post abortion counseling, and awareness of contraceptive methods were extracted. The term women in the study refers to any female person of reproductive age, irrespective of social status. Findings were analyzed where appropriate using the chi-square statistic of the SPSS statistical software. The level of significance was set at P value <0.05.

Results

A total of 423 abortion seekers in Benin City were interviewed. Of these, 16.8% believed abortion was a means of contraception, 59.6% had a previous induced abortion and the mean number of previous induced abortions was 1.02. thirty-eight percent respondents had previously been counseled post-abortion, 71.4% were aware of abortion related complications and 7.3% had ever had abortion related complication.

Table 1 shows their socio-demographic characteristics. The age range of the respondents was from 16 to 49 years with a mean of 23.65 years with a median and a modal age of 23 and 22 respectively. The majority (52.2%) were in the 21-25 years age bracket. Only 0.5% of the abortion seekers had no formal education. The majority (48.9%) had secondary education while 44.7% had post-secondary education. Most of the respondents were students, 12.5% were civil servants while 2.8% were unemployed housewives. The

Table 1: Socio-demographic characteristics of those seeking induced abortion

Characteristic		Percent
Age(years)	16 – 20	24.1
	21 – 25	52.2
	26 – 30	15.4
	31 – 49	8.3
Education	No formal education	0.5
	Primary	5.9
	Secondary	48.9
	Post-secondary	44.7
Marital Status	Single	82.3
	Married	16.5
	Divorced	1.2
Occupation	Civil Servant	12.5
	Housewife	2.8
	Student	52.5
	Others	32.2
Religion	Christianity	95.3
	Islam	1.7
	Others	3.1

Table 2: Reasons for seeking abortion

Factor	Frequency	Percent
Schooling/ apprenticeship	149	35.2
Single	136	32.2
Nursing a child	32	7.6
Abuse/ denial by partner	30	7.1
Financial constraint	22	5.2
Completed family size	15	3.5
Underage/ teenager	14	3.3
Health reason	12	2.8
Means of contraception	10	2.4
Rape	3	.7
Total	**423**	**100.0**

respondents were mostly Christians (95.3%)

The reasons for seeking abortion by the clients are represented in table 2. The majority (35.2%) of the respondents sought abortion because they were still schooling, 32.2% said they were still single, 3.5% said they have completed their family size while 2.8% claimed health reasons. Rape was the least reason, accounting for only 0.7%.

Contraceptive knowledge and use by the abortion seekers is shown on table 3. The majority (65.7%) were aware of modern contraception, including emergency contraception (63.8%). However only half (50.1%) of the respondents had ever used any modern method of contraception while 35.9% were using a modern method of contraception at the time of the study and 42.3% had ever used emergency contraception. Amongst those who had received post–abortion counseling, Seventy eight percent of the respondents resolved to use a modern method of contraception.

Table 4 shows the determinants of contraceptive knowledge among the respondents. There was a highly significant difference (P=0.000) in the contraceptive knowledge among the age groups.

Table3 **:** Contraceptive knowledge and use

Response	Percent (%)
Aware of any modern method of contraception	n(65.7)
Aware of emergency contraception	n(63.8)
Ever used any modern method of contraception	n(50.1)
Currently using a modern method of contraception	n(35.9%)
Ever used emergency contraception	n(42.3)
Resolve to use any modern method of contraception post- abortion	n(78.0)

Contraceptive knowledge was more prevalent among those aged 31-35 years (85.7%) and least among those aged 16 – 20 years (47.1%). Means of information also had a highly significant contribution to contraceptive knowledge (P= 0.001). Health facility (77.1) was the single highest contributor to contraceptive knowledge among the abortion seekers. This was closely followed by information from friends and relatives (76.4%). There was a highly significant association between marital status and contraceptive knowledge (P= 0.002). Contraceptive knowledge was highest among the married

Table 4: Determinants of contraceptive knowledge

Factor		Percent (%)	P-value
Age	16 - 20	47.1	0.000
	21 - 25	68.3	
	26 – 30	75.4	
	31 - 49	85.7	
Education	No formal education	50.0	0.012
	Primary	56.0	
	Secondary	59.4	
	Post- secondary	74.1	
Marital status	Single	62.1	0.002
	Married	82.9	
	Divorced	80.0	
Occupation	Student/ Apprentice	63.1	0.253
	Housewife	83.3	
	Civil servant	73.6	
	Others	65.4	
Number of children	4 and below	64.4	0.006
	Above 4	94.7	
Age at first termination of pregnancy	15 - 20	69.2	0.187
	21 - 25	66.0	
	26 – 30	77.8	
	31 - 35	100.0	
Medium of information	Books and news media	57.1	0.001
	Church	45.5	
	Friends and Relatives	76.4	
	Health facility	77.1	
	Others	82.6	
Had a previous pregnancy termination	Yes	69.0	0.080
	No	60.8	
Previous number of pregnancy terminations	Nil	60.6	0.186
	1	69.7	
	2 or more	68.5	
Previous abortion related complication	Yes	80.6	0.069
	No	64.5	
Counselled after Previous termination of pregnancy	Yes	75.4	0.073
	No	65.6	
Counselled by	Health worker	70.6	0.094
	Friends/ relatives	82.6	
	Others	53.8	
Religion	Christianity	66.3	0.327
	Islam	71.4	
	Others	46.2	

women (82.9%) and least among the single women (62.1%). Similarly, the number of children had a highly significant influence on contraceptive knowledge (P= 0.006). Those who had more than 4 children had a higher contraceptive knowledge (94.7%) than those with 4 or less children (64.4%). Education had a significant (P= 0.012) relationship with contraceptive knowledge. Contraceptive knowledge was highest among those with post-secondary education (74.1%) and least among those with no formal education (50%). History

Table 5: Determinants of current contraceptive use

Factor		Percent	P-value
Age	16 – 20	30.8	0.689
	21 – 25	36.8	
	26 – 30	43.1	
	31 – 49	37.5	
Education	Nil	0	0.258
	Primary	28.0	
	Secondary	33.8	
	Post- secondary	39.7	
Marital status	Single	37.1	0.514
	Married	30.0	
	Divorced	40.0	
Occupation	Student/ Apprentice	36.9	0.281
	Housewife	25.0	
	Civil servant	45.3	
	Others	31.6	
Number of children	4 and below	35.6	0.566
	Above 4	42.1	
Access to contraceptive supply	Yes	39.7	0.128
	No	32.6	
Age at first termination of pregnancy	15 – 20	32.3	0.405
	21 – 25	43.3	
	26 – 30	38.9	
	31 – 35	40	
Medium of information	Books and news media	33.9	0.246
	Church	45.5	
	Friends and Relatives	39.7	
	Health facility	27.1	
	Others	43.5	
Source of contraceptive supply	Health facility	38.8	0.860
	Drug store	38.5	
	Others	28.6	
Previous number of pregnancy terminations	Nil	34.7	0.770
	1	35.2	
	2 or more	38.7	
Previous abortion related complication	Yes	51.6	0.059
	No	34.7	
Counselled after Previous termination of pregnancy	Yes	42.1	0.181
	No	34.4	
Counselled by	Health worker	39.7	0.453
	Friends/ relatives	41.3	
	Others	53.8	
Religion	Christianity	35.7	0.098
	Islam	71.4	
	Others	23.1	

of previous abortion, previous abortion-related complication and previous post-abortion counseling did not have a significant effect on contraceptive knowledge. This also applied to religion, occupation and age at first termination of pregnancy.

Table 5 shows the determinants of current contraceptive use. The determinants of contraceptive use in order of decreasing relevance were previous abortion-related complication (51.6%, P= 0.059), religion (highest in Islam with 71.4%, P= 0.098), access to contraceptive supply (39.7%, P= 0.128) and counsel after previous termination of pregnancy (42.1%, P= 0.181). These associations were, however, not statistically significant. Also, current contraceptive use was not determined by level of education, occupation, marital status and age. Source of contraceptive supply was the least determinant of contraceptive use (P= 0.860).

Figure 1 shows the contraceptive methods ever used. The majority used condom (29.3%). Daily Pills (23.9%) was the second most commonly used method. The LAM (lactation amenorrhoea method) (0.5%) was the least used method. Multiple modern methods were used by 0.5% of the abortion seekers who had ever used contraception. Traditional methods (concoctions) were used by 10.1% of the respondents.

Figure 2 shows the reasons for non-use of

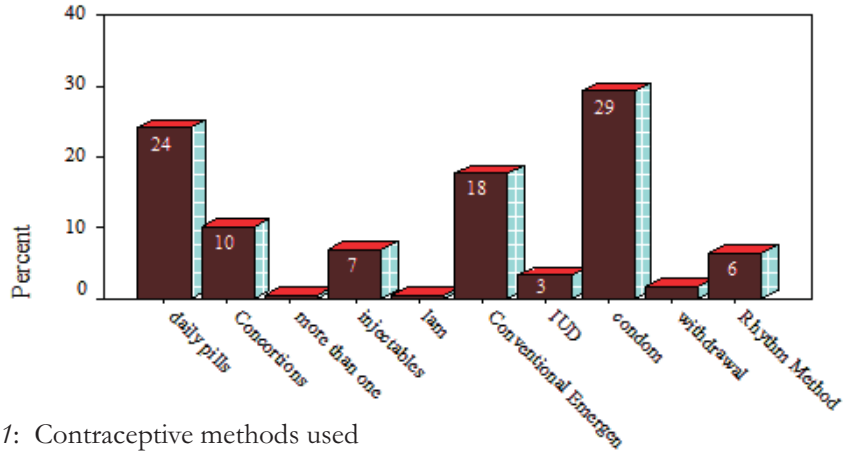

Figure 1: Contraceptive methods used

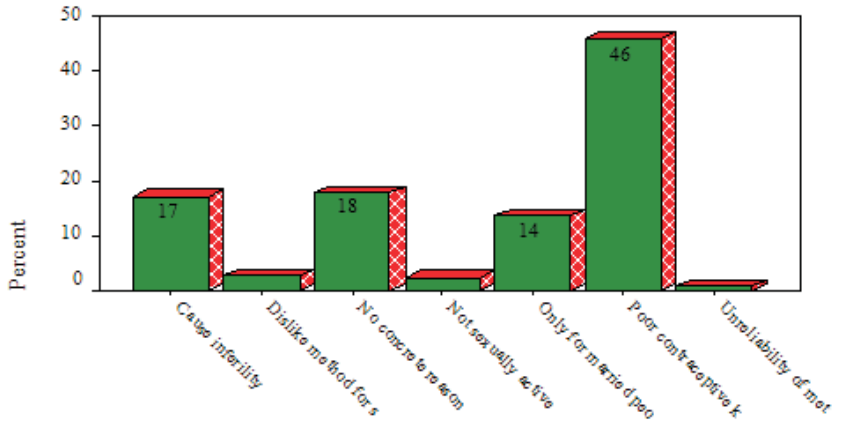

Figure 2: Reasons for non-utilisation of contraceptives

contraceptives. The most common reason for non-use of contraceptives was lack of knowledge about any method (45.7%). Unreliability of method (0.8%) was the least reason for non-use of contraceptives. Among the clients, 17.8% had no concrete reason for not using contraceptives.

Table 6 shows reasons for discontinuing contraceptive use. Dislike/tired of swallowing tablets (16.5%) was the most frequent reason for discontinuing contraceptive use. while 12.8% claimed method ineffectiveness. The least reason was menstrual disorder (2.8).

Table 6: Reasons for discontinuing contraceptive use

Reasons for discontinuing contraceptive use	Percent
Tired of swallowing tablets	16.5
No concrete reason	16.5
Method Ineffectiveness	12.8
Discomfort/ sick	11.9
Weight alteration	8.3
Disliked by partner	7.3
Infertility	6.4
Desire to get pregnant	5.5
Infrequent sexual activity	4.6
Forgetfulness	3.7
Bleeding	3.7
Menstrual disorder	2.8
Total	**100.0**

DISCUSSION

It has been documented in previous studies that young persons within the 15 – 24 years age range have greater incidence of unwanted pregnancy.[6,7] This assertion has been confirmed by this study in which majority(76.3) of the abortion seekers were within the 16 – 25 age range. The fact that the majority of the women in this study were single shows that the pregnancies were unplanned as previously reported by Henshaw et al[2] and also exposes the huge unmet contraceptive needs among our unmarried population. The observation also that many of the women had secondary education is of great concern considering the possible untoward consequences of unwanted pregnancy on educational advancement and economic empowerment.

The respondents in this study demonstrated a fair knowledge of contraception. However, this did not translate into use as only about 35% of the respondents were using any method of contraception at the time of our study. Similar observations have been reported in the literature. [14,15,17,18] Induced abortion has been reported in the past as means of fertility by all people.[1] This concept is still being upheld as shown in this study where as much as 16.8% of the respondents admitted they employed induced abortion as their own means of contraception. This maybe due to fear of long-term adverse effect of contraception on fertility.[13] This is a dangerous trend considering the morbidities and mortalities associated with this choice,[6] which could be prevented by

increased contraceptive uptake by the population.

This study showed a direct relationship between age and contraceptive knowledge as the older respondents showed superior knowledge of contraception. One reason for this is that a young age may pose a barrier to participation in open discussions on matters of sex and contraception, which is a reflection of societal disapproval of sex among the young age group. This can also account for the higher prevalence of induced abortion in this younger age group.

Health facility was significantly the highest contributor to contraceptive knowledge as 77.1% of those who had health facility as their source of information had better knowledge of contraception. The availability of trained workers with better counselling skills in health facilities is an advantage. Health facilities are therefore veritable outlets for dissemination of contraceptive information. In contrast to the previous report by Oye-Adeniran et al,[18] the single women in this study had poorer contraceptive knowledge (62.1%) than married women (82.9%). The setting of the conventional family planning clinics in our setting could discourage single women from availing themselves of contraceptive information that is available in those facilities. Education was however associated with improved knowledge of contraception among the respondents in this study thus corroborating previous reports in literature.[16] Educated women are more likely to come in contact with various sources of information on contraception such as family planning clinics, books, internet and the news media.

The study also showed a direct relationship between parity and contraceptive knowledge as women with more than 4 children showed significantly better contraceptive knowledge (94.7%) than those with fewer children (64.4%). The increase in age, maturity and desire to limit family size may explain this observation. Post-abortion counselling did not appear to significantly influence contraceptive knowledge in this study. This may be due to improper counselling techniques or knowledge by those offering such service.

Current contraceptive use appeared to be influenced by education, religion and source of current contraceptive supply. Contraceptive use was higher among Muslims than Christians. Unlike Muslims, some Christians may shun contraception because their doctrines so dictate. Higher contraceptive use was also enhanced by post- secondary education and contraceptive supply from health facility. These corroborate the findings in other studies.[16,19] However, these associations were not statistically significant in this study. A sample size larger than the 423 used in this study may increase the significance of these associations.

Condom (29.3%), daily pills (23.9%) and conventional emergency pills (17.6%) were the common contraceptive methods used by the respondents. This is contrary to the low level of condom use by young women reported in The Alan Guttmacher Institute News Release.[8] This variation maybe because of increased educational campaigns and better marketing strategies for condom in response to the HIV scourge. The result of the work by Aziken et al supports this.[17]

This study has shown that apart from poor contraceptive knowledge being a reason for non-use of contraception by 45.7% of the respondents, a significant proportion (17.8%) had no concrete reason, while many either believed it was harmful (17.1%) or was meant only for married people (13.6%). Others disliked contraception for religious reason

(2.7%) or believed they were not sexually active enough (2.3%). Only few felt the methods were unreliable (0.8%). The significance of these findings is that the poor contraceptive uptake in young women is based on ignorance.

Even more worrisome was that many of the respondents who used modern contraceptive methods discontinued the use for no concrete reason (16.5%) or were simply tired of swallowing pills (16.5%). This findings buttress the urgent need for organised counseling program targeted at all sexually active women to emphasize the relative safety of modern contraceptive methods and the consequences of non-use or discontinuation of contraception when they are not planning for pregnancy.

CONCLUSION AND RECOMMENDATION

This study has shown that a significant proportion of the abortion seekers in Benin City were aware of a modern method of contraception but only few were currently using a modern method of contraception. Post-abortion counseling did not seem to improve uptake of contraception, perhaps as a result of poor counseling technique or skill. A lot of unwanted pregnancies could have been prevented if this trend was reversed. In the light of this, improved contraceptive counseling skill for health workers is crucial for effective dissemination of information on contraception. There is need to overhaul the family health education system, including the integration of Planned Parenthood into health care delivery system at the primary health care level.

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Presentation of Breast Diseases in Warri, Nigeria

Dr Afeyodion Akhator[1], and Dr Chuck P. Oside[1,2]

ABSTRACT

Introduction: The pattern of breast disease presentation in Warri is not known. Knowing the pattern of presentation will enable planning for adequate scarce resource utilization.

Patients and methods:

A prospective descriptive study was done in Central Hospital, Warri. A pro-forma was designed, including the bio data, presentation, investigation and treatment of all patients presenting to the breast clinic in the hospital between January 2008 and January 2009. Data entered into Microsoft Excel spreadsheet and analyzed.

Results: A total of 142 patients, all females, presented to the clinic. Age range was 16-82years with a median of 29 and mean of 33.37 years. The three main complaints were breast lump 111(78.17%), breast pain 24(16.90%) and nipple discharge 7(4.93%). Fibroadenoma 46(41.44%) are the most common histological diagnosis. 18.02% of the breast lumps were malignant.

Conclusion: Breast lump is the most common complaint in our breast clinic of which 18% of the breast lumps were malignant.

Keywords: Breast symptoms, breast lump, breast cancer, Warri, Nigeria

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INTRODUCTION

Twenty-five percent of women will present to the clinic with breast symptoms during their lifetime[1]. Most of the symptoms are easily recognizable: palpable lumps, pain and discharge. While majority of breast symptoms are benign[2], the main concern of the patient is whether she has breast cancer[3].

Breast cancer is the second leading cancer in females worldwide and the leading cause of cancer related female deaths[4]. In Nigeria, breast cancer is now the commonest cancer in females with majority still presenting with late disease

with subsequent high mortality rate[5]. Screening for breast cancer leading to early diagnosis and early treatment can reduce the mortality and morbidity of the disease. While the developed countries have developed efficient screening programs for breast cancer[6], Nigeria is yet to develop one.

In order to develop effective screening programs, the burden of the disease has to be known. This study was carried out to evaluate the pattern of breast diseases presenting in a breast clinic in Warri. It is compared with other reports from within and outside the country.

PATIENTS AND METHODS

The study was carried out in the Breast clinic of the Central Hospital Warri, Nigeria. Warri is a major oil city in Delta State, Nigeria with over one million inhabitants. The breast clinic is run once a week and receives patients from within and outside the city.

This was a prospective descriptive study. All patients who presented to the clinic between January 2008 and January 2009 were recruited into the study. A structured proforma was designed including patient's biodata, history, physical findings, investigation, treatment and follow up. Patient's data were entered into the printed proforma. These data were collected and entered into Microsoft excel 2007[R] spreadsheet. The data were analyzed using percentages, figures and tables

Ethical approval was obtained from the ethical committee of Central Hospital Warri for the conduct of this study.

RESULTS

A total of 142 new patients, all females, attended the breast clinic in the duration of the study. Age range of the patients was 16 to 82 years with a median of 29 years and mean age of 33.37 years (fig 1). The main presenting symptoms are shown in table 1. 27 patients presented with both pain and lump, and 3 patients presented with breast lump and breast ulcer. The side involved is shown in table 2.

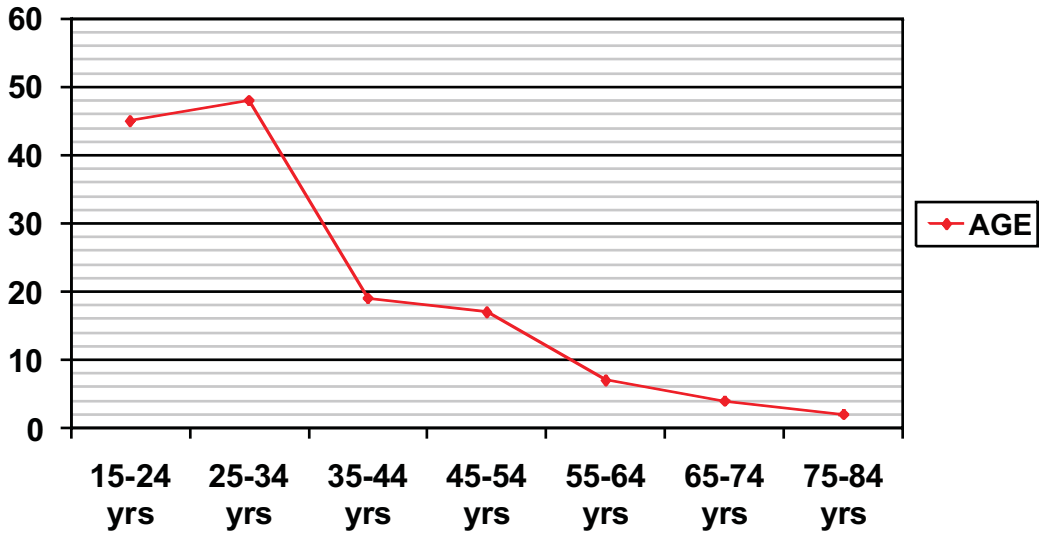

Figure 1 – Age frequency

The duration of symptoms ranged from 4 days to 12 years. 88 (61.69%) patients presented 3 months or more after first noticing the symptoms. 39 (27.47%) presented 1 year or more after onset of symptoms.

One hundred and eleven patients had palpable breast lumps, the breast lumps ranged from 0.5cm to 20cm in size, median size was 3cm and mean size was 3.61cm. 9 cases presented with multiple lumps and 8 were bilateral. The upper outer quadrant was the most common location (40%). This was followed by lower outer quadrant 21.7%, upper inner quadrant 11.3%, lower inner quadrant 10.4%, the periareolar region 9.6% while the whole breast was involved in 7% of cases.

Table 1 – Presenting symptoms

SYMPTOM	NUMBER	PERCENTAGE
Breast Lump	111	78.17
Breast Pain	24	16.90
Nipple discharge	7	4.93
Total	142	100

Table 2 – Laterality of symptoms

SYMPTOMS	RIGHT SIDE	LEFT SIDE	BILATERAL	TOTAL
Lump	54(48.7%)	49(44.1%)	8(7.2%)	111
Pain	4(17%)	5(21%)	15(62%)	24
Nipple discharge	4(57%)	1(14%)	2(29%)	7
Total	62(43.7%)	55(38.7%)	25(17.6%)	142

Breast pain was more commonly bilateral 15(62%) and cyclical 14 (58.33%). Breast ultrasound scans done for them were normal. Nipple discharge was more common in the right side 4(57%), 6(85.71%) cases of nipple discharge had milky discharge with elevated prolactin levels, and one had bloody discharge and histology of microdochectomy specimen showed intraductal papilloma.

The three commonest histological diagnoses of the breast lumps were fibroadenoma (41.44%), fibroadenosis (20.72%) and carcinoma 20 (18.02%) (table 3).

Table 3 – Diagnosis of breast lumps

DIAGNOSIS	NUMBER	PERCENTAGE
Fibroadenoma	46	41.44
Fibroadenosis	23	20.72
Carcinoma	20	18.02
Breast abscess	12	10.81
Tubular adenoma	5	4.51
Galactocoele	3	2.70
TB mastitis	1	0.90
Fibrous tumour	1	0.90
Total	111	100

DISCUSSION

The commonest complaint presenting in our breast clinic over the period of study was breast lump. This is different from what has been reported earlier from some parts of the country and neighboring Ghana that breast pain is the commonest presenting symptom[7,8]. This may be due to the fact that our breast clinic primarily receives referrals from other clinics and it had been reported that most general practitioners are more likely to refer breast lump than breast pain[9].

The study shows that there was significant delay in presentation of breast symptoms to the clinic, this supports other reports[8,10]. This delay resulted in the large size of the breast lumps seen in the study. Delay in presentation has been attributed to feeling that the symptom was not serious, that the symptom will go away and fear of cancer diagnosis[11].

It has been documented that mastalgia is commonly cyclical and bilateral[12] and this is supported by our study. Mammography and breast ultrasound are useful in the evaluation of mastalgia[13] but breast ultrasound done in our series for mastalgia was largely normal. Mammogram was not routinely done for patients presenting with mastalgia in our clinic largely due to cost of the investigation.

The incidence of nipple discharge in our study was 4.93% which is similar to previous report[13]. The incidence of associated breast cancer with nipple discharge has been reported to be 10% but is considerably lower than that if there is no clinical or radiological evidence of breast cancer[14]. Microdochectomy has been recommended for treatment of single duct discharge [15]. This was offered to our patient with bloody discharge with resolution of symptom.

In our study, benign breast masses were commonest followed by carcinoma. Breast abscess came a distant third. This finding is at

variance with reports from other centers where inflammatory breast lesion is the second most common lesion[8,16]. This is most likely due to the pattern of referral to our breast clinic. General practitioners are likely to manage breast abscess and refer masses that would require histological diagnosis.

CONCLUSION

Our study has shown that benign breast diseases are common in our patients with carcinoma of the breast accounting for less than 20% of breast masses. Our patients present late to clinic and we recommend widespread health education on early reporting of any breast symptom and breast self examination to detect these symptoms early.

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Effects of Sub Chronic Exposure to Diesel Combustion Fumes on Hematological Parameters of Wister Rats

Aloamaka CP[1], Ejebe DE[2], Emudainowho JOT[2], and Ekokuto ES[3]

ABSTRACT

Introduction: Several studies on the health effects of diesel exhaust from conventional road and non road sources have been documented but no record of any such work done on combustion fumes from a diesel lamp.

Aim: The present study was undertaken to evaluate the effects of exposure to diesel combustion fumes from an open lamp on the haematological parameters of Wister rats.

Method: Fifteen rats were weighed and divided into 3 groups, n = 5; control rats were unexposed to diesel combustion fumes, group A and group B rats had daily (4hrs) exposure to diesel combustion fumes in an enclosed chamber with open vents for 2 and 3 weeks respectively. At the end of which they were weighed again before their hematological parameters were assessed using standard laboratory methods.

Result: The results showed a statistically significant difference in mean blood level of bicarbonate ions of 20.0±1.47 mmol/L in the control group compared to 25.25± 0.85 mmol/L in rats exposed to fumes for 3 weeks. It also showed decreases in the mean packed cell volume, blood hemoglobin concentration, total white blood cell count (relative lymphocytosis). Increased erythrocyte sedimentation rate accompanied by increasing neutrophil counts in rats in groups A and B compared with their matched controls. These changes were however not statistically significant (all P> 0.05).

Conclusion: There was no significant impact of diesel exhaust fume from the lamp on most of the hematological parameters assessed in this study.

Key: Words: Effects, Sub-chronic exposure, Diesel, Combustion fume, Hematological parameters, Rats

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INTRODUCTION

The exploration and use of petroleum by human population has been associated with environmental (land, water and air) pollution. Gaseous fumes released from the industrial and domestic combustion of petroleum products have been reported to cause inimical health effects in human.

In the ambient environment, human exposure to diesel exhaust (DE) has been reported to come from both non-road and road engine exhaust. On road diesel engines

include vehicles while non road diesel engines include locomotives, marine vessels and heavy duty equipments[1]. Although no longer as common, diesel also serves as fuel in lamps that provide domestic lighting in certain poor regions of the world plagued with either no or unreliable electrical power supply. Diesel exhaust is a complex mixture of hundreds of constituents in either a gas or particle form. Gaseous components of DE have been reported to include carbon dioxide, oxygen, nitrogen, water vapor, carbon monoxide, nitrogen compounds, sulfur compounds and numerous low molecular weight hydrocarbons[1]

The particles present in DE (i.e diesel particulate matter [DPM]) are composed of a central core of elemental carbon and adsorbed organic compounds as well as small amounts of sulfate, nitrate, metals and other trace elements [1].

Available evidence suggests that human health hazards are associated with exposure to diesel exhaust. Hazards to health have been broadly subdivided into acute exposure related symptoms, chronic exposure non cancer effects and lung cancers. Acute irritation of eyes ,throat ,and bronchial tree ; neuro-physiological symptoms such as lightheadedness, nausea; respiratory symptoms like cough ,phlegm[2] and immunological effects like exacerbation of allergenic responses to known allergens and asthma like symptoms [3,4] have been reported as the health effects of short term exposure to diesel combustion fumes. Also results from extensive animal studies on diesel exhaust has been judged to constitute a chronic respiratory hazard to humans with dose dependent inflammation and histo-pathological changes in the lungs reported in several animal species including rats, mice, hamster, and monkeys[5-7] A considerable body of evidence also supports the association between DE exposure and increased cancer risk among workers in varied occupations where diesel engines historically have been used[8] as well as diesel particulate matter (DPM) carcinogenicity and associated DPM organic compounds extracts in rats and mice by non-inhalation routes of exposure [9-12].

While the properties and health effects of the conventional non-road and road diesel exhaust have been studied the effect of the combustion fumes from the use of diesel as fuel in domestic lamps have not been studied. Also there is relative paucity of information on the effects of diesel combustion fume on the hematological parameters of either humans or laboratory animals [9,10,13-16] and none of these considered the effects of the fumes from an open diesel lamp. In one of the above studies no changes in the heart mass or hematology was reported at any exhaust level in either rats or guinea pigs after 78weeks exposure[14].This study assesses the effects of diesel combustion fume from a lamp on the hematological parameters of Wistar rats.

METHODOLOGY

Animal Procurement and Husbandry: Fifteen male Wistar rats weighing between 180-230g were procured from the breeding colony of the College of Health Sciences, Delta State University, Abraka and housed in plastic cages in the animal facility of the Faculty of Basic Medical Sciences, Delta State University Abraka . They were acclimatized for 2 weeks before the experiment commenced. Throughout the experiment they were allowed free access to clean drinking water and standard rat feed (Vital Feeds Nigeria)

Animal Experiment: The fifteen rats were divided into three groups consisting of five per group. Group A (Control subject) had no exposure to diesel combustion fumes during

the study period. Groups B and C rats were exposed to (diesel combustion fume polluted air) in closed chambers for 4 hours everyday for two and three weeks respectively. The rats were weighed before and at the end of the experiment before they were sacrificed.

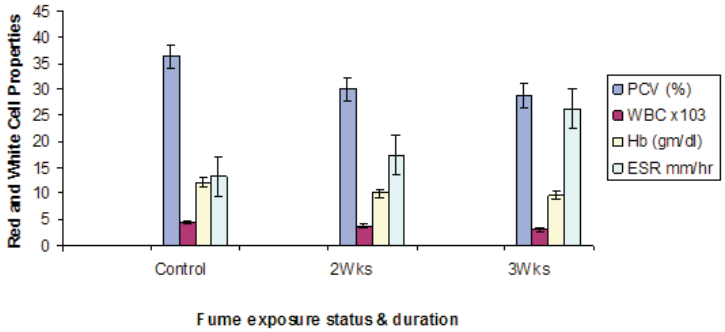
Exposure to diesel combustion fume: To expose the group B and C rats to the diesel combustion fume, they were transferred into two separate wooden boxes connected by rubber tubing to another metal container within which a burning lamp containing diesel was lit with flame. The fume from the diesel combustion was conveyed by the tube into the enclosed boxes where the rats were kept for 4hours everyday. Few holes were bored at the upper part of the enclosed box to allow some atmospheric oxygen. Group A rats also spent 4 hours everyday in the enclosed box but without a burning diesel lamp that emitted fumes into their inspired air. The rest part of each day of control and experimental rats were spent in their plastic cages.

Blood Collection: At the end of the exposure to diesel combustion fume the rats in each group were anaesthetized with chloroform, and 5 ml of blood was collected by cardiac puncture. 2.5ml of the blood collected was stored in lithium heparin bottles while the other half was stored in labeled EDTA bottles that were used for haematological studies. The animals were humanely killed by decapitation at the end of the procedure.

Specimen analyses: The blood samples stored in EDTA bottles were used to undertake the following studies: The packed cell volume (PCV) was determined by Hawksley micro-capillary centrifugation at 5.000 r.p.m for 10 minutes[17]; haemoglobin(Hb) concentration was determined by Sahli-haemoglobinometer method[17]; Erythrocyte sedimentation rate (ESR) was by Westergreen method[17]; WBC total count and platelets were done in neubeur counting chamber [17]; white blood cell differentials was carried out by Leishman Staining techniques[17]. The blood levels of the different electrolytes were done by spectrophotometeric methods using test kits (Cromatest, Spain) as specified in the Linear Chemical Manual of Cromatest reagent company .

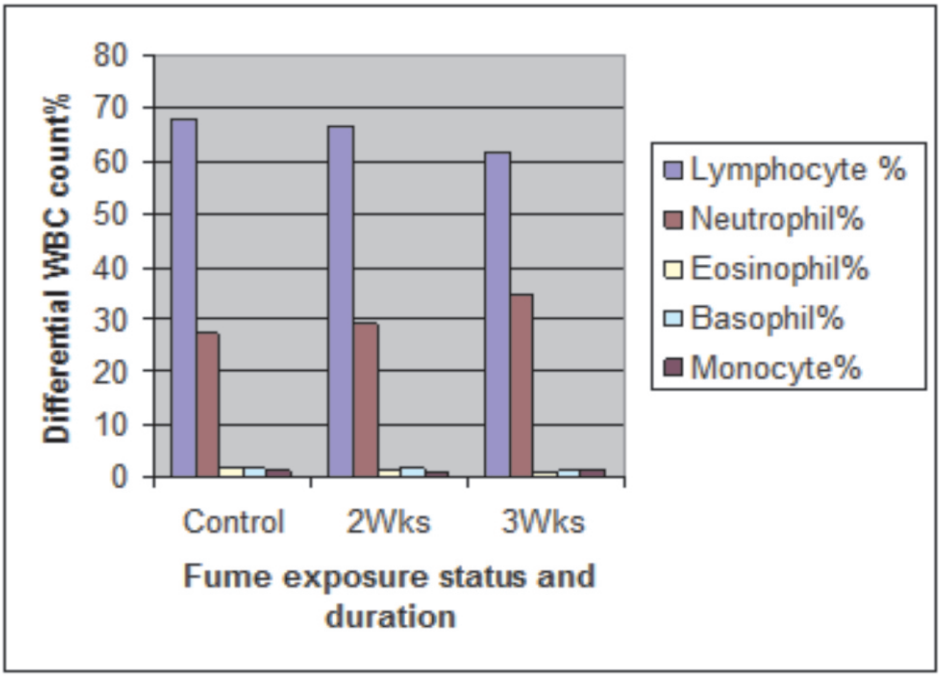
Statistical Analysis: The results expressed as Mean ± SEM. The Means of experimental and control groups were compared with each other using computerized software – Microsoft Excel 2003 by the Students t- Test assuming unequal variance and the single factor ANOVA test. P values less than 0.05 were considered to be statistically significant.

RESULTS



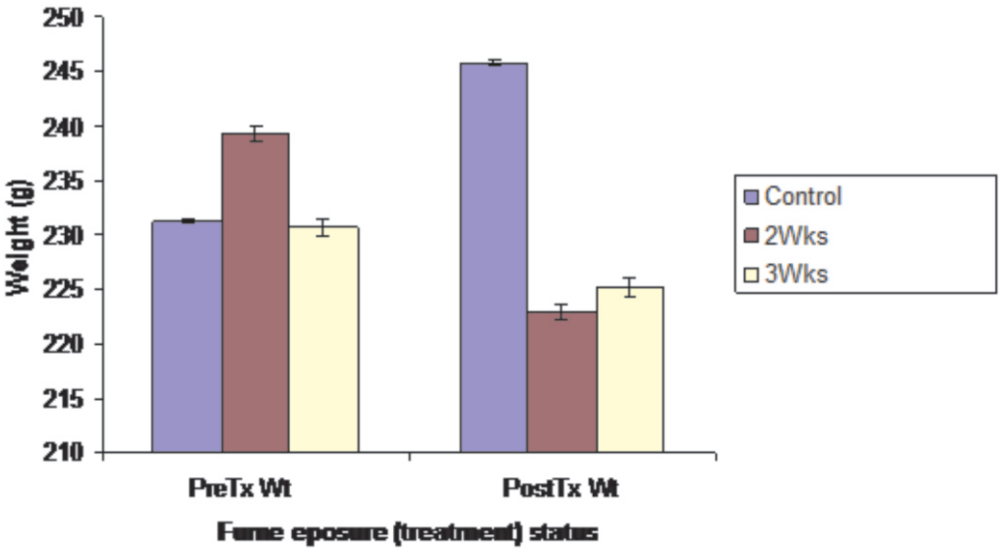
Total White Blood Cell Count (WBC)/ mm3, Blood Hemoglobin Concentration (Hb) and Erythrocyte Sedimentation Rate(ESR) of Wistar Rats. Mean ± SEM, n= 5, Control no fume exposure,2wks (daily fume exposure for 2weeks);3wks(daily fume exposure for 3weeks).

Figure 1: Effects of Diesel Combustion on the Packed Cell Volume (PCV)



Mean ±SEM, n=5,Control no fume exposure,2wks (daily fume exposure for 2weeks);3wks(daily fume exposure for 3weeks)

Figure 2: The Effects of Diesel Combustion on Differential White Blood Cell Count of Wister Rats



Mean ± SEM, n=5, Control no fume exposure, 2wks (daily fume exposure for 2weeks); 3wks(daily fume exposure for 3weeks)

Figure 3: The Effects of Diesel Combustion on the Body Weights of Wister Rats

Table 1: The Effects of Diesel Combustion Fumes on Blood Electrolytes,Urea and Creatinine of Rats

Parameters	Unexposed to fumes Control	Exposed to fumes daily 2Weeks	3Weeks
$[Na^+]$(mmol/L)	134 ±2.04	129.8± 1.93	137.8± 3.42
$[K^+]$(mmol/L)	3.80± 0.4	4.25± 0.11	4.05± 0.17
$[Cl^-]$(mmol/L)	116.25± 9.53	98.25± 1.70	101.5± 2.54
HCO_3 (mmol/L)	*20.0 ±1.47	*20.75± 1.43	*[a]25.25± 0.85
Urea (mg/dl)	42.3± 5.40	37.48± 0.03	37.5± 6.02
Creatinine(mg/dl)	3.17± 0.34	2.83± 0.40	2.67± 0.24

Mean ± SEM, n=5, Control no fume exposure,2wks (daily fume exposure for 2weeks);3wks(daily fume exposure for 3weeks)
Na+-Sodium ion,K+-Potassium ion,Cl-Chloride ion,HCO3-Bicarbonate.
*P< 0.05 (Single Factor Anova significance test:Control vs 2wks exposure vs 3wks exposure)
aP< 0.05 (Student t-Test Exposed vs Control).

DISCUSSION

The results of this study showed that sub-chronic exposure of Wister rats to diesel combustion fumes from a lamp caused a significant ($P < 0.05/0.01$) increase in blood level of bicarbonate,(Table1) compared to that of unexposed rats. This finding differs from the observation of reduced arterial blood bicarbonate level reported in diesel exhaust exposed mice and hamster[5] and unaffected arterial blood gases and standard bicarbonate reported in rats exposed to irradiated diesel exhaust [18]. The bicarbonate concentration was 20mmol/L, 20.75mmol/L and 25.25 for control, 2 weeks and 3 weeks diesel fume exposed rats respectively. ln other words, a steady increase in bicarbonate blood concentration was observed in rats exposed daily to diesel combustion fumes for 2 weeks and 3 weeks compared with control rats that were unexposed and this was statistically significant. A ready explanation for this observation may not be available. The method of blood sampling using the open cardiac puncture under anaesthesia could result in admixture of venous and arterial blood unless caution was strictly exercised to withdraw from the left ventricles[19] . Venous blood is known to contain high levels of carbon IV oxide produced by the tissues. Most of these are conveyed in blood bound to red cell hemoglobin while a smaller portion is transported dissolved in plasma to form carbonic acid which dissociates into hydrogen and bicarbonate ions. An unrecognized admixture of venous and arterial blood complicating collection of blood sample through cardiac puncture could have resulted in the observed increase in the blood bicarbonate concentration. Secondly, this may be as a result of the rats having been exposed to excessive carbon (IV) oxide, a by product of diesel combustion in the air that they inspired. Although the immediate effect of excessive carbon dioxide inhalation should be a respiratory acidosis, it is possible that excessive compensatory mechanisms such as renal leading to increased tubular re-absorption of bicarbonate[20] after a prolong exposure to diesel combustion fumes resulted in the higher blood levels of bicarbonate observed in the fume exposed rats in this study.

There were also observed decreases in other

haematological parameters including packed cell volume (PCV), blood heamoglobin concentration (Hb), total white blood cell count (WBC) while the erythrocyte sedimentation rates (ESR) increased in the rats exposed to diesel combustion fume compared to their respective control (Figure 1). However there were no statistically significant differences between the observations for these parameters in the fume exposed rats from those of their respective control groups (all P values > 0.05).This observation was in line with previously reported lower erythrocyte and leucocyte counts in Hamsters exposed to diesel exhaust for 78 weeks[15] but contradicted reported increases in red blood cell count, Hb, Hct (hematocrit) and total WBC counts in rats that were exposed to diesel exhaust for even a longer time period [9,10].

Figure 2 showed that there was a decrease in the mean differential lymphocyte count from 67.8 3.47 in the control rat to 61.5 5.36 in rats that had 3 weeks fume exposure, which was also not significant statistically. The progressive decrease in the percentage lymphocyte count was observed to be accompanied by a progressive increase in the neutrophil fraction of the total white blood cells. Increases in banded neutrophils have also been reported in rats exposed to diesel exhaust in other studies [13,16]. This might be related to the fact that inhaled combustion fumes could result in reduced immunity and increased susceptibility to respiratory infections as previously reported in mice after exposure to dilute exhaust from light duty diesel engines [21].

The observation in this study that the fume exposed rats had lower mean post treatment body weights compared with their pre-treatment weights while the control rats gained weight before they were sacrificed (Figure 3) was in line with results in previous studies conducted on rats and mice exposed to either DPM or diluted diesel exhaust which had separately reported significant weight loss at high concentration of DPM ;but no effect at low concentration[22] and insignificant loss of body weight [23]. The post-treatment weights of the diesel exposed rats in this study were statistically significantly different (P< 0.05) from their pre treatment weights; hence the weight loss induced by such exposure was significant.

CONCLUSION

Although this study suggest that sub-chronic exposure of laboratory rats to diesel combustion fumes from open lamps may have some effects on their hematological parameters, other than the effect on the blood level of bicarbonate ion, no statistically significant effect was observed in the parameters that were assessed. This suggests that subchronic exposure to limited amount of diesel combustion fumes from lamps sometimes used as a domestic light source may not have far reaching hematological effects. How this observation may be affected following prolonged exposure to limited dose or short term exposure to high dose need to be evaluated in subsequent studies.

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Obstetric Performance of Pregnant Diabetics in a Nigerian Tertiary Hospital

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ABSTRACT

Background: Diabetes mellitus is one of the common medical complications of pregnancy and it seems to be on the increase. The study was undertaken to assess the obstetric performance of pregnant diabetic patients in a Nigerian tertiary hospital, with a view to identifying relevant interventions that will lead to better outcome.

Methodology: A retrospective review of the service delivery records of all cases of pregnant diabetics seen over a 5-year period in the maternity unit of the University of Benin Teaching Hospital, Benin City, Nigeria.

Result: Thirty four cases of diabetics were managed within the period and the incidence was 0.7% of the total deliveries. The cases were predominantly (75%) gestational diabetes mellitus and 80% (27) of the patients were booked. They were mainly (85.3%) multiparous and about two-thirds of the parturients had combined dietary and insulin regime for treatment during the antenatal period. The leading morbidities were candidiasis (63.6%), malaria (47.0%), urinary tract infection (41.2%), placenta previa (26.5%), preterm delivery (20.6%) and pre-eclampsia (18.2%). The caesarean section rate was high (53.0%). The maternal mortality rate was 5882/100,000 and the perinatal mortality rate was 147.1/1000 with a high perinatal morbidity rate.

Conclusion: A low incidence of diabetes is recorded, with high maternal infectious morbidity rates and a high caesarean section rate. The perinatal mortality were high and perinatal morbidity rate. Public health education, prompt booking and utilization of hospital facilities for antenatal care and supervised delivery by pregnant diabetics are recommended.

Keywords: Obstetric performance, pregnant diabetics, Nigerian Tertiary Hospital

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INTRODUCTION

Diabetes mellitus is one of the common medical complications of pregnancy.[1,2] Pregestational and gestational entities are encountered in pregnancy, with gestational diabetics accounting for 90% of all diabetes occurring in pregnancy.[3] However, both entities seem to be on the increase.[1-4]

Reports prior to the seminal discovery of insulin in 1921 by "Banting and Best"[1,2] indicates that the outlook for diabetics was

poor, with a good number succumbing to the acute or chronic complications. While a significant number of survivors present with infertility due to poor control. As such they were then uncommonly encountered in obstetric practice.

However, it is now well documented that cases of diabetes are more commonly seen in contemporary obstetric practice.[1,2] As with improvement in Medicare and better control, fertility profile is improved, and a good number survive to be able to take up reproductive responsibility as high risk cases.

Available data[5,6] indicate that if periconceptional and pregnancy blood glucose concentrations are maintained as near normal as possible, and available techniques for the assessment of fetal growth and wellbeing are used appropriately, then a pregnancy outcome approaching that of the non-diabetic mother can be achieved. This underscores the need for a team care approach for diabetes in pregnancy. On the other hand, the outcome is poor and often catastrophic for mother and fetus if there is no control or control is inadequate.[5,6]

Regrettably, the usage of our inadequate maternity services for antenatal care (ANC) is very low. It is worse with the utilization of labour and delivery components of the maternity services. This largely accounts for the sad state of our maternal and perinatal morbidity and mortality figures even with low risk pregnancies.

The aim of this study therefore was to retrospectively analyze the obstetric performance of diabetic patients seen at the University of Benin Teaching Hospital over a period of 5 years (from January 1st 2000 to December 31st 2004). The outcome of this study has the potential of engendering recommendations that will contribute to the millennium development goals of reducing maternal and perinatal mortality.

METHODS AND MATERIALS

This was a retrospective review of all cases of pregnant diabetic patients seen and managed from January 1, 2000 - December 31, 2004 at the maternity unit of the University of Benin Teaching Hospital. UBTH is located in Benin City, one of the states of the Niger-Delta region of Nigeria. It provides tertiary services to Benin City and its environs.

All patients who presented with diabetes in pregnancy within the study period had their ANC records, labor ward records, theater records, obstetric data sheets and the obstetric electronic data base of the department retrieved and evaluated. Using a study data sheet designed for this purpose, the following information were obtained – sociodemographic characteristics (age, parity, educational level, occupation), type of diabetes mellitus, booking status, maternal morbidities in pregnancy, the need for admission, management modalities in pregnancy, labour and delivery (type of labour – spontaneous, induced or elective CS, mode of delivery – SVD, vacuum, forceps or EMCS), fetal outcome (abortions, IUFD, Macrosomia with dystocia , APGAR score) and Neonatal outcome. Babies weighing less 2.5kg are low birth weight and babies of 4kg and above are macrosomic. All booked patients were jointly managed by the Obstetricians and Physicians.

The information obtained and recorded on the data collection sheet designed for the study was then coded. The coded data were fed into the computer using the SPSS PC+ statistical software and analysis conducted with same. This consisted of univariate analysis and comparisons of identified relationships.

RESULTS

Within the study period 4,868 deliveries were taken at the UBTH, and of these, 34 were diabetic parturients giving an in incidence of 0.7% of the total deliveries. Twenty three (75%) of the diabetic parturients had gestational diabetes while 11 (25%) had pre-existing diabetes. Twenty seven (80%) were booked and the other 7 (20%) came in unbooked. The average gestational age at booking ± SD was 25.8 ± 8.13 weeks. The mean gestational age at delivery ± SD was 37.51 ± 1.15 weeks. Overall, 26 (87.5%) patients had obstetric ultrasound scan done and the mean blood sugar at booking was 143.8mg%, at 32 weeks gestation it was 118mg% and at term 127mg%.

The sociodemographic variables of the patients are presented in table 1. The mean age ± SD of the patients in this review was 33.88 ± 4.64 years with the modal age range being 33-39 years. The mean parity ± SD was 2.29 ± 1.46 with majority (85.3%) being multiparous (para 1-4). The mode of delivery is presented in table 2. Over half (53%) were delivered by caesarean section (CS) while the others (47%) had spontaneous vaginal delivery (SVD).

The mode of antenatal treatment the patients had is analyzed in table 3. Majority (63.6%) had

Table 1: Sociodemographic variables

Variable	Number	%
Age range		
(Years)		
<20	-	-
20 –29	4	11.8%
30-39	26	76.4%
≥ 40	4	11.8%
Mean ± SD	*33.88 ± 4.64*	
Total	**34**	**100**
Parity		
Nullipara (0)	2	5.9
Multipara (1-4)	29	85.3
Grand multiparous (≥5)	3	8.8
Mean + SD	*2.29 ± 1.46*	
Total	**34**	**100**
Education status		
None	-	-
Primary	2	5.9
Secondary	5	14.7
Tertiary	27	79.4
Total	**34**	**100**

Table 2: Mode of Delivery

Mode	Number	%
Elective CS	9	26.5
Emergency CS	9	26.5
Vacuum	-	-
Forceps	-	-
Assisted breech delivery	-	-
Spontaneous vaginal delivery	16	47.0
Total	**34**	**100**

combined dietary management and insulin therapy, 6 (18.2%) had dietary management alone, 3 (9.1%) had insulin therapy alone and another 3 (9.1%) had dietary and oral hypoglycemic therapy. In table 4, the antenatal and postnatal complications are presented. 4 (11.8%) of the unbooked patients came in as emergency with diabetic ketoacidosis, the leading infectious morbidity in the antenatal period were Candidiasis (63.6%), malaria (47.0%), urinary tract infection (42.2%) and pneumonia (18.2%). 6 (18.2%) patients had pre-eclampsia, 9 (26.5%) patients had placenta previa and 7 had preterm delivery. 5 (14.7%) patients who had emergency CS came down with wound sepsis and 2 (5.9%) of the unbooked patients who came in with ketoacidosis at term suffered mortality in the immediate post-partum period giving a maternal mortality rate of 5882 per 100,000. Postnatally 11 (32.3%) patients had Candidiasis, 6 (18.2%) patients had pre-eclampsia and 5 (14.7%) patients had post-caesarean wound sepsis.

*Table 3:*Mode of antenatal management

Mode	Number	%
(a) Diet only	6	18.2
(b) Insulin only	3	9.1
(c) Oral hypoglycemic only	-	-
(d) a & b	22	63.6
(e) a & c	3	9.1
Total	**34**	**100**

The fetal and neonatal outcome is presented in table 5. There were 29 (85.5%) live births and 5 (14.7%) stillbirths giving a perinatal mortality rate of 147.1/1000 live births. The average birth weight + SD was 3.33kg + 1.04 kg with 20.6% being low birth weight babies and 32.3% being macrosomic babies. One (2.9%) of the babies delivered to an unbooked patient had caudal regression syndrome which is a typical congenital anomaly associated with diabetes mellitus. The admission rate to SCBU was 44.1% and the leading neonatal morbidity were Macrosomia (32.4%), Prematurity (20.6%), jaundice (5.9%) and respiratory distress syndrome (RDS) in 1 (2.9%) baby.

Table 4: Antenatal and postnatal complications

Complications	Antenatal No.	%	Postnata l No	%
1. **Ketoacidosis**	4	11.8	-	-
2. **Infection:**				
Malaria	16	47.0	-	-
Pneumonia	6	18.2	-	-
Urinary tract	14	41.2	-	-
Candidiasis	22	63.6	11	32.3
3. **Polyhydramnios**	-	-	-	-
4. **Raised blood pressure:**				
Pre -eclampsia	6	18.2	6	18.2
5. **Placenta previa**	9	26.5	-	-
6. **Preterm delivery**	7	20.6	-	-
7. **Others :**				
Retinopathy	-	-	-	-
Nephropathy	-	-	-	-
Wound sepsis	-	-	5	14.7
Maternal death	-	-	2	5.9

Table 5:Fetal and Neonatal outcome

Variable	Number	%
Viability @ birth		
Live birth	29	85.3
FSB	1	2.9
MSB	4	11.8
Birth weight (kg)		
<2.5	7	20.6
2.5 –2.99	2	5.9
3.0 –3.99	14	41.2
≥4	11	32.3
Mean + SD	*3.33 + 1.04*	
Congenital Anomaly		
Yes	1	2.9
No	33	97.1
Admission to SCBU		
Yes	15	44.1
No	19	55.9
Neonatal morbidity		
Jaundice	2	5.9
RDS	1	2.9
Macrosomia	11	32.4
Prematurity	7	20.6
Nil	12	38.2

DISCUSSION

This study was conceptualized to evaluate the obstetric performance of pregnant diabetic patients with a view to using the findings to design useful interventions that will help reduce the burden of diabetes in pregnancy in Nigeria. The recorded incidence of diabetes in pregnancy in this study was 0.7% of total deliveries, this compares favorably with the figure from Ibadan in south western Nigeria reported by Otolorin *et al* over two decades ago and lower than the figures reported from South Eastern Nigeria by Ozumba et al less than a decade ago. This figure is also much lower than values from Caucasian studies.[3,4] The is not surprising as the frequency of diabetic patients presenting to obstetric units in Nigeria remains low possibly because a good proportion of our diabetic population still succumb to the acute or chronic complications of diabetes due to poor access to health facilities coupled with ravaging effect of poverty that prevents the diabetic patients from sustaining the long term treatment needed to keep them in good health just akin to what the situation was before the seminal discovery of insulin by "Banting and Best".[1,2] Over two thirds of patients in this study had tertiary level of education and this probably explains the relative excellent state of health, prompt use of health facilities and good obstetric outcomes in this series. As with good level of education the patients are better informed of the health implications of not taking appropriate treatment and care.[7] Additionally, they are also better endowed economically to be able to afford the cost of treatment and hence better compliance.

Over half (53%) of the patients in this review were delivered by caesarean section. This is consistent with existing data[8-10] that shows that both pre-existing and gestational diabetes increase the risk for caesarean delivery. However, unlike the report by Remserg et al8 in which they demonstrated that the risk of caesarean delivery is independent of the birth weight, our findings show that 61.1% of the cases of caesarean delivery were on account of Macrosomia. Other contributing factors in this series were placenta previa, severe pre-eclampsia and prematurity. Some of the patients had more than one indication for the caesarean delivery. Remserg *et al* also noted other intermediating factors in diabetics such as practice pattern and physician referrals to high risk care as contributing to caesarean delivery.

Majority of the patients (63.6%) in this study had dietary management combined with insulin and this compares favorably with reports of previous study[11]. Evidence are abound[1,2,] that while some oral antidiabetic medications have been studied and found to be safe in pregnancy, insulin is still the best and safest method for controlling blood sugar throughout pregnancy. However, some emerging reports[11-13] are indicating that the use of oral antidiabetic medications (glyburide and metformin) in the management of diabetes in pregnancy have shown the equivalence to insulin in terms of pregnancy outcomes. Both agents are shown to cross the placenta to the fetus often resulting in unacceptable hypoglycemia in the new born, and thus they should be used with caution and patients counseled appropriately. The use of oral hypoglycemic agents in this series remains largely rudimentary as only few patients had these oral antidiabetic agents prescribed.

It has been documented that the increased glucose content of the vaginal epithelium and the presence of glycosuria make infection with Monilia commonplace in pregnant diabetics[2] and this has been clearly demonstrated in this series with about two thirds of the patients having Candidiasis antenatally. This dropped postnatally to about a third of the study population indicating a reduction in the glucose

content as the gluconeogenic effect of pregnancy had been cut off. Additionally, it is in evidence[2] that urinary tract infection is more common in pregnant diabetes than non-diabetics and therefore it is recommended that asymptomatic bacteriuria be sought at specific intervals in pregnancy and any sign of infection be treated vigorously. This becomes very instructive in view of the finding of this study where inspite of the fact that eighty percent of the patients reviewed were booked, over forty percent of them still had clinical urinary tract infection. Interestingly the post-caesarean wound infection rate in this study is consistent with that described previously for normal population[14,15] and we hypothesize that this is due to adequate prophylactic antibiotic use. Indeed, Beattie *et al*[16] in their prospective study of the Risk Factors for Wound Infection Following Caesarean Section, demonstrated that antibiotic prophylaxis was the most significant protective factor in the reduction of postoperative wound infection even in overweight patients.

Pregnant women with gestational diabetes have been shown in population studies to have increased risk of pregnancy-associated hypertension compared with nondiabetic women[17]. About a quarter of patients in this series had pre-eclampsia and it has been hypothesized that this association could be due, at least in part, to insulin resistance. Although insulin resistance is a physiologic phenomenon in normal pregnancy, in predisposed individuals this could lead to hyperinsulinemia with the development of gestational hypertension, gestational diabetes mellitus or both.

The fetal outcome in this series is in keeping with the findings of previous studies. [10,18-21] The perinatal mortality rate compares favorably with above earlier Nigerian reports but higher than values from Caucasian studies[10,18-21]. About a third of babies in the study were macrosomic which underscores the need for tight blood sugar control, as the blood sugar control in most instances in these patients was less than optimal. This call for prompt implementation of a team care approach which is the gold standard for the management of diabetes mellitus in pregnancy.[22] The only case of congenital malformation was that of caudal regression syndrome which is pathognomic of diabetes mellitus and this was in an unbooked patient with extreme poor control of the blood sugar at presentation. Admission rate to SCBU and the morbidity rate were quite high which is consistent with the findings of earlier authors[4,9,12,19,20].

In summary, the incidence of diabetes in pregnancy was low, the caesarean section rate was high and the use of insulin in conjunction with dietary regime was the major option of treatment of the pregnant diabetics in this study. The infectious morbidity rate was high and a significant proportion of the parturient had pre-eclampsia. The perinatal mortality and perinatal morbidity rates were high. We recommend that there is the need for public health education as to the need for prompt booking and utilization of hospital facilities for antenatal care and supervised delivery by pregnant diabetics, as this is the only way they can benefit from the team care approach of management which is the gold standard.

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Socio-demographic Profile of Older First Time Mothers at the University of Calabar Teaching Hospital, Calabar, Southern Nigeria

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ABSTRACT

Objective: The study set out to determine the socio-demographic profile of women who have their first childbirth at age ≥30 years in Calabar, Southern Nigeria.

Methodology: This was a cross sectional study applying a semi-structured interview. Participants were recruited from the University of Calabar Teaching Hospital over a 5 month period. We compared the socio-demographic characteristics of the primiparous women aged ≥30 years with a control group of multiparous women, also aged ≥30 years, but who had ≥1 previous delivery before age 30.

Results: Eighty-six and 254 women formed the study and control groups respectively. Women in the study group were more likely to have university degrees (P= 0.000) or to still be undergraduates (P=0.0002) than women in the control group. The proportion of women in professional occupations was higher than in the control group (P = 0.047%), while the proportion of housewives was significantly lower (P= 0.002). The proportion of Annang women in the study group was significantly higher than in the control group (P= 0.011), while that of Ibibio women was significantly lower (P = 0.0006). Muslims were significantly less likely to delay motherhood till age 30 (P=0.038), while the differences in Church affiliations for the 2 groups of women were not significant (P>0.05).

Conclusion: Compared to others, university-educated women, women in professional occupations and Annang women living in Cross River State are more inclined to commence motherhood at age ≥30 years.

Key words: Profile, Older, Primiparous, Calabar

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INTRODUCTION

The chance of a woman achieving a pregnancy and also having a successful outcome drops with age[1]. Despite this fact, reports indicate that the average maternal age at first childbirth is rising in many nations of the world and in countries like Germany, Spain, Switzerland and the United Kingdom; it is closely approaching 30 years[2]. Several countries in sub-Saharan Africa have also begun to record an upward trend in the average age at first birth[3]. Marriage, which is still the context in which most births occur, is also taking place at later ages[4]. The overall picture reflects a gradual shift towards a delayed pattern of family formation as is occurring in more developed nations[4]. Recent demographic and health surveys show that Nigeria is not left out of this global trend[5]. Onah and Eze[6], in their study spanning 21 years,

noted that there has been a significant increase in the mean age of primigravida and the proportion of elderly primigravida (women aged ≥ 35 years at first birth) in Enugu, Southern Nigeria. A multicenter study by Nwagha et al [7], also in Enugu, recorded a high mean age of 29.2±5.6 years for primigravida presenting at the antenatal clinic for the booking visit. The reported prevalence of elderly primigravidity in Nigeria ranges from 2.0% to 4.4% [8,9,10]. Delaying childbearing has the advantage of allowing women to acquire the biological maturity as well as the physical and psychological resources they need to undertake motherhood successfully, but protracted delays also have medical consequences. Ojo and Oronsaye[11], in their study to establish who should be termed an elderly primigravida in Nigeria, found that the rate of complications in pregnancy and labour begin to increase significantly for primigravida at age 25 and become even further heightened above age 29. Mukherjee and Chowdhury [12] found a higher perinatal mortality rate in women aged ≥30 years compared to younger women. The rates of gestational diabetes, third trimester bleeding and pre-existing diseases complicating pregnancy are higher [1,11-14]. There are also higher rates of intrauterine growth restriction, prematurity and fetal chromosomal abnormalities [1,11-14]. Apart from the risks in pregnancy, the decision to merely postpone childbearing has saddled women with unanticipated childlessness because of age-related decline in fertility [15]. In societies were postponing motherhood is pronounced; the consequence of the attendant decline in total fertility rate has been a worrisome reduction in population renewals through births [16].

Studies suggest that the pursuit of education and career goals is causing women to deliberately postpone motherhood in the more developed countries. Therefore, women who delay childbearing in these countries are more highly educated and work in occupations that require more advanced skills [16-18]. What are the socio-demographic characteristics of women in Calabar who become mothers for the first time in their thirties and forties? Are the women more educated? Which types of occupation would we find them? Is religion a factor? Does ethnicity play any role? Profiling the women will aid in identifying the background factors that predispose women in Calabar to intentionally or unintentionally delay motherhood.

METHOD

The setting for the study was the Maternal and Child Health Clinic of the University of Calabar Teaching Hospital (UCTH) in Calabar, Cross River State, Southern Nigeria. It is situated in the maternity section of the hospital and provides maternal and child health services including postnatal care, health education, infant immunization and treatment of common childhood illnesses. Mothers and their infants are usually referred to this clinic on discharge post-delivery. After approval from the ethical committee of the hospital, consenting primipara who were ≥ 30 years old at childbirth were recruited into the study group. All consenting multipara who attended the clinic during the period the participants in the study group were enlisted, were recruited into the control group if they were aged ≥ 30 years at the recent birth and had at least one previous delivery before the age of 30. We excluded women with a previous history of infertility. The choice of a similar age group for the control was to reduce the chance that any difference in educational or occupational attainment is due to age disparity. Women who met the criteria were identified by research assistants and consent to participate were obtained. Each woman was then interviewed by

a research assistant who also administered a pre-tested questionnaire. Information obtained included parity, highest educational qualification acquired, ethnicity, marital status, religious affiliation, occupation, place of work, rank and a description of her responsibilities at work. This enabled the appropriate classification of the individual's occupation as professional, managerial and technical, skilled, partly-skilled or unskilled [19].

The minimum sample size for the study (at 95% confidence level) was calculated to be 83 based on hospital records which showed that first births to mothers aged ≥ 30 years accounted for 331 (5.7%) of the 5773 total deliveries in the preceding five years (2002-2006). We however decided to recruit ninety-one women into the study group to cover for attrition. The data was analyzed using Epiinfo 2002 statistical package. Proportions were presented as percentages and the socio-demographic characteristics of the two groups were compared using student's t-test and chi-square as appropriate. A P-value of ≤0.05 was considered statistically significant.

RESULTS

A total of 352 women were recruited into the study, of which, 91 were first-time mothers**.** Eighty-six of the 91 women (95%) provided complete data for analyses, while 254 (97%) of the 261 women recruited into the control group provided same. Subsequent analyses were based on these women with complete data. The ratio of the women in the study group to women in the control group was 1:3. The control group ranged in parity from 2-8, with a mean of 4.07. The age range for the study group was 30-40 years with a mean of 32.2±2.4 years and for the control group; the age range was 30-42 years with a mean of 32.1±2.7 years. The difference was not significant (P = 0.72). Eighty-four (97.7%) women in the study group and 251 (98.8%) women in the control group were married.

Table 1 compares the highest educational qualification obtained by the two groups of women. It shows that the women in the study group were more highly educated than the control group. The number of women in the study group who either had no educational qualification or had educational qualifications lower than senior secondary school certificate (SSCE) was 5 (5.8%) as against 48 (18.9%) in the control group. The difference was statistically significant (P = 0.004). Those who had SSCE were 28 (32.6%) in the study group as against 117 (46.1%) in the control group. The difference was also statistically significant (P =0.028). On the other hand, 35 women (40.7%) in the study group had university degrees as against 49 (19.3%) women in the control group and the difference was statistically

Significant (P = 0.000).

Table 1: Highest educational Qualification Obtained by the Women: Study and Control Groups Compared

Qualification	**Study group n = 86 (100%)**	**Control group n=254 (100%)**	**P value**
Lower than Senior secondary school certificate	5 (5.8)	48 (18.9)	0.004
Senior secondary school certificate	28 (32.6)	117 (46.1)	0.028
Post-secondary Diploma	18 (20.9)	40 (15.7)	0.27
Bachelors/masters degree	35 (40.7)	49 (19.3)	0.000

Table 2: Classification of the Women's Occupation: Study and Control Groups Compared

Classification	Study group n = 86 (100%)	Control group n=254 (100%)	P value
Professional	8 (9.3)	10 (3.9)	0.047
Managerial/Technical	16 (18.6)	34 (13.4)	0.22
Skilled	19 (22.1)	44 (17.3)	0.325
Partly skilled	17 (19.8)	108 (42.5)	0.000
Unskilled	3 (3.5)	5 (2.0)	0.33
House wives	1 (1.2)	33(13.0)	0.002
Unemployed	7 (8.1)	8 (3.1)	0.06
Undergraduate	15 (17.4)	12 (4.7)	0.0002

As shown in Table 2, women in the study group were significantly more likely to be found in professional occupations than the control group (9.3% versus 3.9%, P= 0.047) and they were also more likely to be found among undergraduates (17.4% versus 4.7%, P=0.0002). On the other hand, the women in the study group were significantly less likely to belong to partly skilled occupations (19.8% and 42.5%, P =0.000), and to be housewives (1.2% versus 13%, P 0.002).

The ethnic origin and religious affiliations of women in both groups are compared in table 3 and 4 respectively. Annang women were more likely than the other ethnic groups to delay childbearing till age 30 (P = 0.011), while Ibibio women were the least likely to do same (P =0.0006). Three hundred and twenty-nine (96.8%) of the participants described themselves as Christians and the differences in church affiliations in the two groups were not statistically significant (P > 0.05). On the other hand, Muslim women were significantly less likely to delay motherhood to age 30 (P=0.038).

Table 3: Ethnicity of the Women: Study and Control Groups Compared

Ethnic group	Study group n = 86 (100%)	Control group n=254 (100%)	P value
Cross River State			
Efik	12 (14.0)	42 (16.5)	0.57
Ejagham	12 (14.0)	37 (14.6)	0.89
Bekwara	6 (7.0)	10 (3.9)	0.19
Others	10 (11.6)	19 (7.5)	0.23
Akwa Ibom State			
Ibibio	9 (10.5)	73 (28.7)	0.0006
Annang	14 (16.3)	18 (7.1)	0.011
Others	6 (7.0)	12 (4.7)	0.29
Ibo	12 (14.0)	26 (10.2)	0.34
Others	5 (5.8)	17 (6.7)	0.78

Table 4: Religious Affiliations of the Women: Study and Control Groups Compared

Religious Group	Study group n = 86 (100%)	Control group N=254 (100%)	P value
Catholics	12 (14.0)	45 (17.7)	0.41
Traditional Protestant Churches	27 (31.4)	75 (29.5)	0.74
Pentecostal churches	28 (32.5)	75 (29.5)	0.59
Spiritual churches	17 (19.8)	43 (16.9)	0.55
Other Christian groups	2 (2.3)	5 (2.0)	0.84
Muslims	0 (0.0)	11 (4.3)	0.038

DISCUSSION

Our study shows that the proportion of women with university degrees is significantly higher among those who commence motherhood at age 30 or above than among women who commence earlier. That women who delay childbearing are more highly educated, is in keeping with findings in other parts of the world [16-18,20-22]. High education levels have a direct effect on maternity postponement in addition to other possible effects [21]. The additional years spent in higher education act mechanically to increase the age when women enter into motherhood as there are clear indications in the literature that being still in education inhibits entry into motherhood [21]. This fact is supported by our finding that the proportion of undergraduate mothers was significantly higher among women who commenced motherhood at age 30 and beyond than among those who commenced earlier.

Events in Nigeria's education sector allude to the fact that the additional years university students spend in educational pursuit after secondary school is longer than it should be and may have contributed to our finding. For one, the waiting time before gaining admission into a university is long [23]. The poor economy and the high unemployment rate have led to phenomenal increases in annual demand for university education such that the total absorptive capacity of the available universities is unable to satisfy up to 25% of the demand [23,24]. Secondly, the universities have been disproportionately plagued with industrial actions and students' unrests as a fall out of the under-funding of the sector [24]. University-educated women are therefore likely to be older at graduation and when they enter into family formation than they would have been without these interruptions.

Our study also shows that the proportion of women in professional occupations (professions with a university degree as the minimum entry requirement) among those who delay motherhood is significantly higher than among those who commence earlier. Conversely, there are significantly more housewives and women of lower socio-economic status among those who start earlier. The picture suggests that like women in other parts of the world, participation in the labour force is important to women who delay childbearing here[17]. By extension, achieving financial independence and/or the ability to contribute to the family's income also seem to be important. Vezina and Turcotte in Canada [16] and Beets in Netherlands[17] also noted that women who delayed motherhood were more likely to be found in professional occupations than other women. This is to be expected given the better educational background of the

women. However, the search for a satisfying job and the demands of a career especially at the building phase can also be the major reasons why our women in professional occupations delay parenthood [21,22]. Further studies are necessary to confirm or refute this.

The study also revealed that ethnicity and religion overtly or covertly play a role in the timing of entry into motherhood in the state. Interestingly, significant ethnic differences were noted among women of neighbouring Akwa Ibom state who are resident in Cross River State. While Annang women were the most disposed to commencing childbearing later, Ibibio women were the least disposed to do the same. Although among Christians, religious affiliations had no impact on the timing of entry into motherhood; Muslims were less inclined to delay motherhood in line with the finding of others [25]. Our dual finding of the importance of ethnicity and religion in the timing of entry into motherhood in the state is in contrast with Otieno and Bocquier's [26] findings in Nairobi, Kenya. Religious affiliations of the participants in their study influenced entry into motherhood, but ethnicity did not. Although our findings remain to be explained, the answers may lie in the different values and attitudes towards sex, marriage and parenthood that is transmitted through ethnic and religious lines or in the proportion of women in these groups who receive a higher education.

CONCLUSION AND RECOMMENDATIONS

Compared to women who commence motherhood earlier, those who delay childbearing are significantly more educated and belong to professional occupations. Higher educational attainment and a quest to participate in the labour force seem to play major roles in the delay. With the upward trend in women seeking university education [27], the number of women who will delay motherhood is set to rise and so will the attendant medical and societal consequences. Measures that will increase the total admission capacity of universities and also those that will contain the rampant industrial actions in the universities should be put in place to reduce this risk. Equally important, is incorporating into reproductive health education, the risks of unduly postponing childbirth. Also, the underlying factors responsible for the ethnic influence observed in the study will need to be identified by further studies.

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Paper Presentation

The Role of Laboratory Medicine in Health Care Delivery

Being the text of the 1st Professor Alfred Ebruke Jarikre's memorial lecture
Delivered by Professor EJC Nwana, MBBS (Ib), FMCPath, FWACP, FICS
Dean, Faculty of Basic Medical Sciences,
University of Abuja, Abuja, Nigeria

Background

The Honourable Commissioner or Higher Education, Delta State
The Vice -Chancellor, DELSU
The Deputy Vice-Chancellors
The Registrar
The Bursar
The University Librarian
The Provost, College of Health Sciences
The Deans of Faculties
Mrs Bolatito Jarikre - widow of late Professor Alfred Ebrukevbe Jarikre in whose honour we are today assembled
Professors
Directors
HODs
Distinguished Invited Guests, Ladies and Gentlemen
Gentlemen of the Press

It is with a deep sense of humility that I stand before you all, this day on the kind invitation of the College of Health Sciences, DELSU to deliver this lecture on the Role of Laboratory Medicine in Healthcare Delivery as a befitting memorial to our departed colleague, the late Professor Alfred Ebrukevbe Jarikre, Foundation Dean of the Faculty of Clinical Medicine, DELSU, who translated to higher service on the 11th June, 2009. I am particularly delighted that even as today's event evokes painful memories of his short but fulfilled sojourn here on earth, it also affords us an opportunity to reflect on the life and times, works and scholarly contributions of this distinguished Academician, Medical doctor and worthy son of Delta State to the advancement of knowledge in his chosen field which has direct relevance to the topic of today's engagement.

When Adam and Eve as recorded in the book of Genesis, chapter three (3) fell out of Celestial favour in the garden of Eden by Eve succumbing to the serpent's deception, God had them thrown out and as part of the enduring sanctions, from then on man came to know suffering, disease and death. It was in man's ensuing and unrelenting quest to understand disease, suffering and death that the medical profession emerged. Ironically the symbol of the medical profession- the bronze serpent on the wooden staff as designed by

Moses on God's instruction as a healing instrument still bears the serpent that ab initio was responsible for man's loss of Eden and its resultant devastating consequences. The evolution of laboratory medicine, naturally followed man's efforts through the centuries since creation to understand and deal decisively with his numerous physical afflictions as first perceived clinically.

Laboratory Medicine has always been an integral part of proper clinical medicine. Suffice it to say that majority of life changing breakthroughs in medicine happened and have continued to happen in the area of laboratory medicine, which is considered the scientific foundation of medicine. The spectrum of laboratory medicine covers the functioning of the various body systems in both health and sickness. Thus the scope ranges from the basic medical sciences of Physiology, Anatomy and Biochemistry to Chemical Pathology, Medical Microbiology and Parasitology, Haematology/Immunology, Pathology i.e. Anatomic Pathology. Also included are genomics, proteomics, tandem mass spectrometry and micro array technologies. Advances in technology have through the centuries continued to revolutionize the methods and practice of laboratory medicine with very palpable outcomes for patients, medical practitioners and scientists.

At this juncture, I will crave your indulgence to do a little more detailed analysis of the impact and role of laboratory medicine in ensuring an efficient, prompt and effective healthcare delivery system.

1. SCREENING FOR RISK FACTORS OF DEVELOPING SPECIFIC DISORDERS

Screening tests may be conducted on asymptomatic individuals in order to check for risk factors and other indicators of developing or latent disease. Some of the tests for children and young adults can avoid or diminish the impact of diseases and medical conditions that appear later in life. Furthermore, screening tests for adults can detect certain common diseases that when identified early can be easily treated- these include; Diabetes mellitus, colonic cancer, prostate cancer, cervical cancer, sickle cell carrier trait e.t.c.

2. DIAGNOSING CONDITIONS AND EVALUATING PROGNOSIS

Laboratory medicine is key to or critically important for accurately diagnosing and determining the severity of disease. Equally important is the place of laboratory medicine in assessing the likelihood of recovery and follow up. Potential adverse outcomes can also be evaluated by laboratory medicine. Accurate diagnosis, especially early-stage detection of disease through laboratory tests helps the healthcare provider and even the patient to take measures that prevent or reduce the risk of developing the full blown disease or consequent complications. Such measures include but are not limited to life-style modifications, increased medical monitoring, medical interventions e.t.c.

Thus early laboratory diagnosis minimizes the severity of disease and its effects on mortality, morbidity and quality of life. For example, early detection incipient colon cancer by using faecal occult blood testing is associated with more successful treatment and increased survival.

3. MONITORING GENERAL TREATMENT EFFECTIVENESS

Laboratory medicine investigations play a major role in monitoring and evaluating the efficacy of other medical treatments. Some of these tests used to monitor treatment

effectiveness are the same as those used to make the initial disease diagnosis e.g Thyroid stimulating hormone estimation is used for both diagnosis and monitoring of thyroid disease. Carcino-embryonic Antigen levels aid in diagnosis and monitoring of colonic cancer. However, some of the laboratory tests are basically used for monitoring and not diagnosis e.g cluster designation (CD4) count in the assessment of response to anti-retroviral therapy.

The areas under monitoring of treatment by laboratory medicine include - managing acute health conditions ie electrolyte levels, arterial blood gas profiles, coagulation indices, glucose levels, serum protein S100, D-dimer levels e.t.c. In chronic health conditions, laboratory tests monitor play key role in estimation of HbA_1C-glycosylated hemoglobin level in diabetic therapy follow up, lipid profile evaluation for cardiovascular disease and glomerular filtration rate (GFR) in cases of chronic kidney disease.

In therapeutic drug monitoring, laboratory tests are integral to management of drugs with narrow therapeutic regimens. The tests are also instrumental in establishing and maintaining the medication dosage that will yield the optimum blood level range for a specific individual. Laboratory tests also provide a means to prevent and detect medication errors i.e errors occurring in the medication use process, such as wrong dosages prescribed or administered, failure of compliance by the patients.

4. VALUE TO THE QUALITY OF PATIENT CARE

Healthcare delivery systems are grounded on six aims of quality with the patient as the centrepiece as defined by international best practices - safety, effectiveness, timeliness, efficiency, equity and patient centredness. Laboratory medicine supports these six aims extensively and incontrovertibly. Safety refers to the protection of patients from harm due to care that is intended to help them and protect healthcare workers from harm while providing care. Laboratory medicine helps to diminish risk by accurate identification of specimens, appropriate collection and transport of specimens and application of analytical process control measures/quality assurance.

Effectiveness refers to measurement of how well healthcare interventions such as screening, diagnosis and treatment e.t.c achieve their intended outcomes. Laboratory medicine supports effectiveness by evidence-based test ordering, standardized specimen collection and analysis.

Laboratory medicine supports timeliness and cut down unnecessary delays with attendant consequences by decreasing turn-around times (TATS). This has been aided by the design and production of point-of-care test (POCT) kits by laboratory medicine techniques.

Efficiency referes to using resources to optimise production of desired results. Laboratory medicine contributes to healthcare efficiency by eliminating or reducing waste associated with inappropriate test ordering, recollection of specimens and repeat analysis e.t.c

Equity of care ensures that quality of care does not vary because of patient personal characteristics e.g sex, race, socioeconomic status e.t.c. Laboratory medicine contributes to equitable care when they provide services in a manner that is unbiased, use of reference intervals that account for population differences, accommodate the special needs of patients during specimen collection.

Patient -centred care is respectful of and responsive to individual patient values, preferences and expressed needs. Laboratory

medicine supports patient-centred care when test ordering reflects patient preference, specimen collection is designed for patient comfort and satisfaction- test results are understandable to and actionable by both patients and Physicians.

5. VALUE TO PUBLIC HEALTH SURVEILLANCE

Laboratory medicine is very important and pivotal to identification of public health threats at both the individual and population levels. Examples include identification of associated infections or nosocomial infections. Medical Microbiology, an arm of laboratory medicine helps to monitor and control nosocomial infections. Identification of changing patterns of resistance to drugs by microorganisms and also incidences of multi-drug resistance organisms. Identification of infectious disease outbreaks e.g cholera, yellow fever e.t.c. Identification and amelioration of exposure to toxic, chemical and biological threats through early notification of enforcement officials.

Identification of fake or ineffective drugs-this is a role of laboratory medicine. What NAFDAC basically does is anchored on laboratory medicine -which has an invaluable role in prevention of disease.

6. VALUE TO EVIDENCE-BASED MEDICINE (EBM) AND DEVELOPMENT OF CLINICAL PRACTICE GUIDELINES

Laboratory medicine supports the practice of evidence-based medicine and helps in the development of clinical practice guidelines which assist Clinicians and patients in making decisions about healthcare in specific circumstances. Evidence -based medicine has been hailed by many as a new paradigm shift for medical practice whereas others consider it unscientific with a heavy emphasis on a statistical and more managerial approach to decision making that challenges the nature of clinical expertise and clinical decision making. Practicing evidence-based laboratory medicine has four dimensions: (a) identification of the question (b) critical assessment of the best evidence available, embodying the principles of health technology assessment © implementation of best practice and (d) maintaining best practice which embodies the principles of clinical audit. Application of the principles of evidence-based medicine to laboratory medicine highlights the importance of establishing the role of diagnostic procedures in clinical decision making. The discipline is crucial to creating and delivering the research and development agenda in the laboratory, while providing a foundation for the training of laboratory professionals. The continuing application of an evidence- based approach to practice will meet the quality expectations of patients.

7. VALUE TO ECONOMIC INDICES

Laboratory medicine is very important in the reduction of economic implications of healthcare delivery. This is one aspect that is often overlooked by many governments in that in healthcare delivery, laboratory medical practice is usually allocated a tiny fragment of the budget coming to healthcare. Given the role of laboratory medicine in the prevention of disease and useful guidance of treatment, the economic evidence as determined by widely accepted cost-effectiveness analysis (CEA) of its utility is not in doubt. Think of what could happen if an improperly screened or unscreened batch of blood is utilized in the healthcare delivery system. However, because the consequences such as hepatitis B and C infection, HIV are not immediate, most people

may not readily appreciate the cause and effect outcomes. Hon. Commissioner, Mr. Vice-chancellor……., having extensively reviewed the role of laboratory medicine in contemporary healthcare delivery systems- the question that now comes to mind is what are the future challenges in this relationship and how prepared are we for the future?

At the global level especially in industrialized democracies, the healthcare industry is undergoing one of the most massive transformations ever seen in any industry. There will be an escalation of challenges facing the healthcare in the next few decades. Among these challenges are the proliferation of new technology and clinical information management systems, especially the utilization of shared electronic health records. Pathology service, in combination with sophisticated pathology informatics systems (PIS) is one of the major forces driving changes within the medical world through the adaptation of new technology.

In the coming decades, internal and external factors will require us to reinvent PIS for the future. These factors include both technology advances and socio-cultural factors. Pathology services and PIS will continue to lead the transformation of medical care through genomics, proteomics, tandem mass spectrometry and micro array technologies. These 'omics' technology and biomedical informatics will gradually merge and be an integral part of the deep sea of laboratory medicine.

Advances in technology, however come at increased costs to organizations and healthcare consumers. Many laboratories might not be able to afford these technologies and centralization of testing facilities will become the norm. Point-of-care testing devices will proliferate. The accuracy and reliability of these devices need to be vigorously examined. More importantly, capturing and storing the Pathology information from these devices might be problematic; there is especially a need to differentiate results from point-of-care devices and results from formal laboratories. The introduction of a shared electronic health record and consumer informatics systems will accelerate the integration of the PIS into shared electronic health records.

These challenges will demand an increasing role of future PIS in direct patient care, through dynamic and intuitive integration. New advances in technology, such as microarray and proteomics will have significant impact not only in the delivery of diagnostic and therapeutic maneuvers, but also in the work flow of medical practice and ethos of patient care delivery. The introduction of these technologies creates a new level of clinical-pathology interaction. Future PIS will need to cater for the needs of Pathologists, Pathology scientists, Clinicians and Consumers. Hon. Commissioner, MR Vice-Chancellor…..,it was to the herculean and formidable challenges x-rayed above that our dear husband, friend, brother, pathfinder and distinguished academic Late Professor Alfred Ebrukevbe Jarikre deployed his God given talents and expertise as a Medical Doctor/academic throughout most of his working life and career. In his many scientific experimentations and publications, Alfred sought to and indeed expanded the frontiers of knowledge in understanding diseases of the cardiovascular system, Diabetes mellitus and liver diseases. Laboratory medicine was his forte and his erudite scholarly submissions on carbohydrate and lipid metabolism remain enduring testimonies to his sobering intellectual exertions in the specialty of laboratory medicine. Professor Alfred Jarikre was also a trained journalist and for several years was a guest columnist at the now rested Daily Times publications. In his several writings in that

medium, he was able to bring about a seamless fusion between the town and gown in a mutually beneficial relationship. When he relocated to the Delta State University, Medical School from the University of Lagos, Medical School, it was in answer to a call to service. He was encouraged by several colleagues including the Guest Lecturer to return home and contribute to the development of higher education in Delta State, particularly Medical education. Education throughout the history of mankind has always been acknowledged as a prime mover of human progress. There is no doubt that Nigeria may never realize its full potential for development, greatness, peace, unity and concord if her citizens are denied the chance of a true and genuine education. A former DG, UNESCO once said and I quote "only when the purposes of education have been defined will it be appropriate to turn to its content, partners, beneficiaries, methodology, funding and other educational demands."Chief Obafemi Awolowo in the course of an address to a Union of Teachers in Ibadan in 1947 said that "Education is that process of physical and mental culture whereby a man's personality is developed to the fullest." Some 46 years later in 1993 DR Federico Mayor, DG, UNESCO went further to say that "Education is not only instilling knowledge, but awakening the enormous creative potential that lies within each of us, enabling all of us to develop to our fullest potential, and better contribute to the societies in which we live". (Address to the International Commission on Education for the Twenty-first Century)

As a young undergraduate at the University of Ibadan, one of my earliest recollections of Convocation or Commencement ceremonies as Americans prefer to call them was this opening sentence by the various Deans ie "the following persons having been found worthy in character and learning". The emphasis was first and foremost on character. Reflecting on the state of education today in Nigeria- it would appear to me that what today's youth who are completing secondary schooling and embarking on higher education need are moral compasses and navigational charts and principles by which to live and act if we must avoid an imminent social upheaval. The place of character training in our young people cannot be over-emphasized- this imperative has been captured in a UNDP publication titled **INVESTING IN THE FUTURE** in which it is stated that experienced political leaders know that they must go beyond the economistic and psychometric views of education and deal with its fundamental ethical and human dimensions. As was noted by Dr Samuel J Cookey at the second Obafemi Awolowo Foundation Dialogue in 1994 – what we need today are not merely literate leaders and citizens. Goodness knows we are not short of graduates of all kinds. We have them everywhere. What we require are men and women who have moral stature, and whose actions are based on noble principles. An all round education, including character education will broaden the minds of our young citizens and produce truly patriotic Nigerians who will ensure that in future, characteristics like personal greed, tribalism, ethnicity, bribery and corruption and intolerance of all colorations will be dethroned.

I am deeply gratified, to bear testimony to the fact that Prof. Jarikre's efforts in this regard were largely rewarded, have not been in vain and today the DELSU Medical School is on course and cruising at the right altitude. On a day such as this, I remember Alfred with a lot of pride and gratitude for the times shared, the pains and frustrations endured and the challenges that were overcome. I therefore urge all of us here, to lead our lives and render

selfless services to mankind so that it will also be said of you at the end of your odyssey on earth, that a good doctor, teacher, researcher, husband, father or mother passed through on this side of the great divide. Permit me in all humility to recommend for your contemplation the immortal words of Epictetus – a first century AD, Greek stoic Philosopher who wrote and I quote "what wouldst thou be found doing when overtaken by death? If I might choose, I would be found doing some deed of true humanity, of wide import, beneficent and noble. But if I may not be found engaged in aught so lofty, Let me hope at least for this- what none may hinder,

What is surely in my power-that I may be found raising up in myself that which had fallen; learning to deal more wisely with the things of sense; working out my tranquility and thus rendering that which is its due to every relation of life. If death surprises me thus employed, it is enough if I can stretch forth my hand to God and say; "The faculties which I received at Thy hands for apprehending this, Thine administration, I have not neglected. As far as in me lay, I have done Thee no dishonour. Behold how I have used the senses, the primary conceptions which Thou gavest me.

Have I ever murmured at aught that came to pass or wished otherwise? Have I in anything transgressed the relations of life? For that though Thou didst beget me, I thank Thee for that Thou hast given; for the time during which I have used the things that were Thine it suffices me. Take them back and place them wherever Thou wilt. They were all Thine and Thou gavest them me".

If man departs thus minded, is it enough? What is life is fairer or more noble? What end happier than this?

Hon. Commissioner, MR Vice-Chancellor, distinguished Ladies and Gentlemen, thanks for listening and being part of this modest effort, to do honour to the memory of a dear departed colleague. May the soul of Professor Alfred Ebrukevbe Jarikre continue to rest in peace with God, our Creator. Amen