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to the diabetic control. The impacts of dietary treatment at the two inclusion levels on these markers of oxidative stress were not significantly different ( $P < 0.05$ ) compared to insulin. Table 3 shows that the AST, ALT and ALP level of the diabetic control were significantly increased ( $P < 0.05$ ) in the diabetic control group compared to the normal control. Treatment with the diet and insulin significantly reduced ( $P < 0.05$ ) their levels compared the diabetic control. Results for diets were superior to insulin.

## DISCUSSION

The research was design to evaluate the potential role of diets containing *Vernonia amygdalina* leaves in the management of oxidative stress and liver damage in diabetics, with the view to expand treatment option and accessibility to medicaments. Streptozotocin induced a type 1 model of diabetes. There was a profound alteration in the level of lipid peroxidation end product (MDA) content and antioxidant enzyme status in the liver. MDA level was significantly ( $P < 0.05$ ) elevated whereas the enzymes level were significantly reduced ( $P < 0.05$ ). Elevated lipid peroxidation and the drastic alterations in the antioxidant enzyme status is an indication of oxidative stress in the liver of the diabetic control rats. The diabetic rats treated with diets exhibited considerable protection against the oxidative stress at both dose levels though; the higher dose level was numerically superior. The GPx, SOD and CAT level were significantly increased while MDA was significantly reduced in the diabetic treated group compared to the diabetic control. This shows the protective effect of the diet on the antioxidant enzyme status of diabetic rats.

The ASP, ALT and ALP level support the fact that the diet played a protective role since their levels were significantly reduced ( $P < 0.05$ ) in the groups of diabetic rats consuming the diets compared to the diabetic control as opposed to the increased in their levels in the diabetic control. The liver is the major organ involved in glucose homeostasis. Hepatocellular injury, cell death and liver fibrosis occur when ROS and RNS are generated in excess<sup>15</sup> Glutathione peroxidase is important in cellular defense against wide variety of hydroperoxides.<sup>16</sup> The liver is abundant in both selenium dependent and independent GSH-Px. The enzyme is found in the cytoplasm, mitochondria, and nucleus and metabolizes

hydrogen peroxide to water by using reduced glutathione as a hydrogen donor. There is no agreement about the effects of diabetes on the activities of glutathione peroxidase in the liver. Maritime<sup>17</sup> reported elevation of its activity in the liver while Rajasekaran and Kalaichavan<sup>18</sup> reported a decrease in its activity in the liver. In our study, we obtained a decrease in its activity and our results agree with Rajasekaran and Kalaichavan.<sup>18</sup> The discrepancy may be due to the severity and duration of diabetes and the time the sample were collected. Some animals might have on their own managed to recover from the diabetogen before the samples were collected. Reduction in the activity of this enzyme may compromise its function and might account in part for the increased oxidative stress in the diabetic control in this study. Diabetes-induced alterations in glutathione peroxidase activity are reversed by treatment with probucol, DHEA, combined vitamins C, E, and -carotene, quercetin (in liver and brain, though not in kidney or heart), coenzyme Q10 and isoeugenol (only in liver), piperine (in kidney GPx).<sup>17</sup> The diet in this study was effective in restoring the activity of this enzyme.

SOD converts superoxide anion radicals produced in the body to hydrogen peroxide, thereby reducing the likelihood of superoxide anion interacting with nitric oxide to form reactive peroxynitrite. There is no consensus on the effect of diabetes on the activity of SOD in the liver<sup>17</sup> which perhaps is due to the same reason advanced for GPx activity. In our study, we obtained decrease in the activity of this enzyme in the liver of diabetic control rats and our results agree with Rajasekaran and Kalaichavan.<sup>18</sup> Reduction in the activity of SOD may compromise its function and might account in part for the increased oxidative stress in the diabetic control in this study. Alterations of SOD activity in well established diabetes was possible with coenzyme Q10 and piperine, but not with vitamin C, vitamin E, and carotene.<sup>18</sup> Reports show that conventional antioxidants do not prevent diabetic complications effectively (especially in sustained hyperglycemia) because conventional antioxidants neutralize reactive oxygen molecules on a one-for-one basis, whereas hyperglycemia-induced overproduction of superoxide is a continuous process. The diet in this study was effective in restoring the activity of this enzyme. Diet high in vegetables and fruits are

more beneficial than conventional antioxidants since they contain plethora of antioxidants and other significant dietary factors. *Vernonia amygdalina* leaf is rich in antioxidant vitamins, minerals, cofactors and phytochemical.<sup>19</sup> They work in synergy with each other and against different types of free radicals.<sup>17</sup>

There is also no consensus view on the effect of diabetes on the activity of catalase, which perhaps is due to the same reason advanced for GPx activity. In our study, we obtained decrease in the activity of this enzyme in the liver of diabetic control rats and our result agrees with Rajasekaran and Kalaichavan.<sup>18</sup> Catalase decomposes hydrogen peroxide to water and oxygen. Reduction in its activity may compromise its function and might account in part for the increased oxidative stress in the diabetic control in this study. Treatment of established diabetes of 4 weeks or more did not alter its level. For example, no reversals are seen after treatment with melatonin, quercetin, coenzyme Q10, piperine, isoeugenol, gemfibrozil, or combined vitamin C, vitamin E, and beta-carotene.<sup>17</sup> It was interesting to observe that our diet was able to elevate the activity of this enzyme to normal.

The increased MDA level in the liver of diabetic control rats was an indication of hyperglycemia caused lipid peroxidation. MDA is more cytotoxic and stable than reactive oxygen species.<sup>20</sup> The increase in lipid peroxidation is also an indication of decline in defence mechanisms of enzymatic and nonenzymatic antioxidants. Oxidized lipids are able to produce MDA as a decomposition product and the mechanism is thought to involve formation of prostaglandins, like endoperoxides, from polyunsaturated fatty acid (PUFA) with two or more double bonds]. Increased lipid peroxidation in the membrane of liver<sup>21</sup> is reported in diabetic cases. Increased level of MDA in diabetics suggests that peroxidative injury may be involved in the development of diabetic complications and is associated with vascular complications<sup>21</sup>. Increase in lipid peroxidation results in tissue damage.<sup>21</sup> Liver damage is followed by leakage of liver enzymes ASP, ALT and ALP. Significant high levels of these enzymes were seen. Reduction in the level of these enzymes in the diabetic rats consuming diet showed that the diet was able to counteract lipid peroxidation and perhaps heal the damaged cells. Similar observations were reported for

*Azadirachta indica* leaf extract.<sup>22</sup>

## CONCLUSION

The presents study demonstrates the potential role of *Vernonia amygdalina* leaf diet in protect ingoxidative stress and liver damage in diabetic wistar rats. The effect of the diet may be due to the plethora of antioxidants in the leaves including vitamins, minerals, cofactors, and phytochemicals acting in synergy against all oxidants and also containing compounds acting as insulin as well as antioxidant enzymes mimics. The diet may play a major role in protecting oxidative stress and liver damage of diabetes mellitus and is therefore recommended for further studies.

## ACKNOWLEDGMENTS

The authors wish to acknowledge Professor Patrick Ebong of the University of Calabar, Calabar and the financial assistance given by the Education Trust Fund, Federal Government of Nigeria.

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up, if need be. This finding is somewhat comparable to the results obtained by other researchers in many other countries; in Australia the rate of counselling, education or advice documented by general practitioners was 33 per 100 STI contacts<sup>23</sup>; and in Uganda, while 29% gave complete education and counselling, 61% mentioned the need to help their partners get treatment<sup>33</sup>, but in Malaysia 84.6% requested their partners to be notified<sup>32</sup>, however fewer 13 (56.4%) respondents in the Uyo study included partner notification in their counselling message to the patients. Methodological variations may have accounted for the differences observed, the main limitation in the Uyo study being that it was strictly based on what the clinicians reported, there was neither observation of clinician-patient interaction, nor review of the health records to substantiate the claims that were reported.

It was therefore concluded that most clinicians in Uyo do not manage STIs effectively, as complete patient education and counselling which is a very important component of STI management was not offered by most of them. This calls for skills reinforcement in STI management, aimed at promoting the use of the proven cost-effective but comprehensive STI management tool which readily reminds the clinician of all the steps to take in managing STI patients. This can be done through CME and other similar update programs, for clinicians in Akwa Ibom State.

#### ACKNOWLEDGEMENT

The authors are grateful to Akwa Ibom State Association of Private General Practitioners for giving us a list of her members and to all the clinicians who participated in this study.

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## Perinatal Outcome of Singleton Term Breech Deliveries in a South-South Nigerian Tertiary Hospital

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### ABSTRACT

*The delivery of a foetus with breech presentation at term is often associated with increased perinatal morbidity and mortality. The optimal mode of delivery to reduce these known complications for breech deliveries at term remains controversial. The aim of the study was to determine the prevalence and perinatal outcome of singleton breech deliveries at term, and ascertain any association with mode of delivery. This was a retrospective analysis of all singleton term breech presentations delivered in the University of Uyo Teaching Hospital between January 2008 and December 2010. There were 190 singleton breech deliveries out of a total 5007 deliveries during the period giving a prevalence of 3.79%. One hundred and fifty-six (82.1%) were booked while 34(17.9%) were unbooked patients. Ninety-eight (51.6%) of the patients had assisted breech delivery while 27.4% and 21.1% of the patients had elective and emergency Caesarean sections respectively. One hundred and forty-two (74.7%) of the babies had Apgar scores of 7 and above at 5 minutes while 24(12.6%) had Apgar scores of 1 to 6 at 5 minutes. Elective Caesarean section was associated with Apgar scores of 7 and above at 5 minutes compared to assisted breech delivery and emergency Caesarean section ( $X^2 = 30.66, P < 0.001$ ). Elective Caesarean section offers a better result for fetuses with breech presentation at term and can be recommended when perinatal outcome is the primary concern.*

**Keywords:** Breech Presentation, Term, Perinatal Outcome, Nigeria

### INTRODUCTION

Breech presentation is the commonest form of foetal mal-presentation, complicating about 3-4% of deliveries at term.<sup>1</sup> Although its exact cause is unknown, the incidence is however higher at lower gestational ages with most undergoing spontaneous version before term.<sup>2</sup> It is often associated with increased perinatal morbidity and mortality which is said to be doubled irrespective of the route of delivery.<sup>3</sup> The increased perinatal morbidity and mortality during breech delivery has been linked to prematurity, congenital anomalies and birth trauma.<sup>2,4</sup> Compared to the cephalic presentation, it is also more often associated with an increase in maternal morbidity from Caesarean sections and operative vaginal deliveries.<sup>3</sup> The optimal mode of management of breech presentation is often a cause of controversy amongst Obstetricians. Attempts to reduce the complications associated with breech

presentation have thus led to intense debate about the safest mode of delivery for the foetus presenting breech at term. The options available for the management of breech presentation at term include external cephalic version, elective Caesarean section (CS) and assisted vaginal breech delivery. However the term breech trial and subsequent studies have shown the advantages Caesarean section has over vaginal breech delivery.<sup>5,6</sup> These studies, which showed better perinatal outcome when breeches are delivered by Caesarean section were mostly carried out in developed countries; and seem to point an end to vaginal breech delivery.<sup>7</sup> Despite the well documented safety of Caesarean section, and the consequent lure for it in the developed countries, studies in less developed nations especially Nigeria show very strong aversion to the procedure.<sup>8-10</sup>

The problems of predicting the chances of success of a vaginal breech delivery (VBD), the implications of failure and attendant risk to the mother and foetus has led many workers to introduce several selection criteria for the conduct of vaginal breech delivery.<sup>2,11</sup> However an adequate/capacious pelvis adjudged by a previous delivery of a term infant of 2.5 kg or more, an average sized foetus (2.5-3.5 kg), and a frank

47.8% reported consistent use of the algorithm. Majority of clinicians (81.8%) offered their clients HIV counselling and testing (HCT), after treating for STIs. Details of the patient education and counselling given by the respondents varied from "compliance to treatment, abstinence, mutual fidelity and consistent and correct use of condoms {ABC}" (30.43%) to "compliance to treatment, ABC and partner notification" (21.74%); "compliance to treatment, ABC, partner notification and follow up appointment" (21.74%); "compliance to treatment, condom use and partner notification" (13.04%); and 13.04% compliance to treatment and condom use alone.

### DISCUSSION

The above stated results provide a view of how clinicians in private practice manage STIs in Uyo, Akwa Ibom State. Sexually transmitted infections can be diagnosed clinically from history and physical examination, syndromically-using groups of signs and symptoms, and/or etiologically identifying the causative organism using laboratory investigations.

Management of STIs can be assessed by different methods such as direct observation of provider-patient encounter, in-depth interview of provider, use of a structured/semi-structured questionnaire, review of patients' records, interview of exiting patients or the use of patient simulation or mystery clients. Notwithstanding, the subjective nature of using a questionnaire to gather information from the clinicians, its advantage of easy applicability informed the use of this method.

Majority (82.6%) of the clinicians in Uyo can be said to diagnose STIs appropriately, being that they reported the use of both clinical and etiologic diagnosis; this is much higher than the 57.2% experienced in Jamaica<sup>28</sup>, and may explain why only 47.8% of the respondents in Uyo use the syndromic management algorithm consistently; most of the private clinics have access to private laboratories where tests for etiological diagnosis can be done, however it should be noted that the scope of services and authenticity of the results obtained from some of such laboratories is often questionable.

With respect to choice of drugs for treating the STIs, 21.7% of the clinicians said they based their treatment on sensitivity results, while about two thirds (65.2%) reported treatment based on the experience with drug efficacy, since the study did

not assess the specific drugs and their efficacy with respect to the specific disease(s) for which they were being used to treat, it is difficult to say if the treatments were effective or not. However studies in other countries have revealed that few clinicians in private sector give effective treatment for some STIs, for example in South Africa, 28% of doctors and 34% of nurses gave effective treatment for urethral discharge, and only 4% of doctors could effectively treat Pelvic inflammatory disease (PID).<sup>29</sup> In another South African province, only 9% of prescriptions from general practitioners were adjudged to be adequate when viewed against the provincial recommendations.<sup>30</sup> In Namibia 56%, 28% and 0% of general practitioners, could correctly treat urethral discharge, PID and genital ulcer respectively, using the Namibian syndromic management guidelines as a standard.<sup>31</sup>

Administering drugs is often considered as the hallmark of managing most diseases including STDs, and sometimes clinicians erroneously assume that their responsibility ends with diagnosis and treatment of the disease. This is an error, because most disease conditions, especially those that deal with sexuality and human behaviour requires more than chemotherapy; as proper risk assessment, patient education and counselling, follow-up care, partner management are all essential components of managing STIs, if their spread are to be controlled. This study therefore decided to consider the details of the patient education and counselling message that the clinicians offered to their STI patients.

The fact that 81.8% of the respondents offered HCT to their patients, shows that less than one fifth (18.2%) of them did not offer HCT, which is a lot better than the Malaysian private practitioners, where though 42.3% gave HIV counselling, less than a half of them reported screening their STI patients for HIV.<sup>32</sup>

More than three quarters (78.3%) of the respondents reported that they gave their STI patients some education and counselling, however assessment of the details of the contents of the counselling showed that only 5 (21.7%) of them gave what could be termed as complete information for STI counselling; that is message on need for treatment compliance; risk reduction and prevention of further STI transmission through- abstinence, fidelity and consistent & correct condom use; importance of partner notification and treatment; and clinical follow

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visited. Out of the 34 clinics, 4 refused to participate; the clinicians said that they did not have the time to complete any questionnaire. Incomplete responses/questionnaires were received from 7 other clinicians, some of whom stated that they had not seen STIs patients, therefore the questions were not applicable to them, so they couldn't complete some sections of the questionnaire. Therefore 23 completed questionnaires were available for analysis.

The instrument for study was a 30-item structured, self-administered questionnaire, which consisted of two sections, the bio-data of the respondent and information on how the respondent manages STIs including the contents of counselling where this was given. The tool was pre-tested at the general out-patient department of the University of Uyo Teaching Hospital, and appropriate corrections were made before administering to consented clinicians in the visited private health facilities.

**RESULTS**

A total of twenty three questionnaires were completed and retrieved; the respondents were twenty male and three females. Their mean age was 35.3± 9.1 years, a little over one third (36.4%) had practised for 5 years or more, the rest had less than 5 years of clinical experience. Majority of the respondents (82.6%) diagnosed STIs using history and clinical features and laboratory findings, whereas 8.7% of them did clinical diagnosis, and another 8.7% reported no technical parameter for diagnosis (Table 1).

About two thirds of them (65.2%) prescribed drugs based on their past experiences on their efficacy. Only 21.7% of them insisted on using the laboratory sensitivity testing. However, 13.0% of the respondents referred their clients for appropriate treatment. Majority of the respondents (73.9%) were aware of the Syndromic management algorithm, but only

**Table 1: Pattern of management of STIs by Clinicians in Private Health Facilities (HFs) in Uyo, Akwa Ibom State, Nigeria.**

	Frequency (%)
<b>How Clinicians in private Hfs diagnose STIs</b>	
Using History, Clinical Features and Lab. Findings	19(82.6)
History and Clinical Features	2(8.7)
Based on experience/ no parameter for diagnosis	2(8.7)
<b>Ways of treating STIs by Clinicians in private Hfs</b>	
Based on experience/known drugs	15(65.22)
Based on microscopy, culture and sensitivity	5(21.74)
Referral	3(13.04)
<b>Awareness of WHO Syndromic Management algorithm</b>	
Aware	17(73.9)
Not aware	6(26.1)
<b>HIV Counselling and Testing</b>	
Done	19(81.8)
Not done	4(18.2)
<b>STI Counselling details</b>	
Treatment compliance, Abstinence, Fidelity, Condom use; partner notification and follow up	5(21.74)
Treatment compliance, Abstinence, Fidelity and Condom use, follow up	7(30.43)
Treatment compliance, Abstinence, Fidelity and Condom Use; partner notification	5(21.74)
Treatment compliance, Abstinence, Fidelity and Condom use	3(13.04)
Treatment compliance and Condom use	3(13.04)

breech with well flexed head in a preferably multiparous patient are considered favourable factors for assisted breech delivery.<sup>1-3,11</sup>

The University of Uyo teaching hospital (UUTH) is the only hospital offering tertiary health care services in Uyo, South-south Nigeria. Currently, there are no departmental guidelines for the management of breech presentation at term. Although external cephalic version (ECV) can reduce the incidence of breech presentation at delivery, it has not been feasible to perform enough ECV to have significant impact on mode of delivery of singleton term breeches in the third world.<sup>2,3,12</sup> It is not routinely practiced in our centre due probably to a dearth of experience, fear of failure and complications and at times patients' decline. However, when breech presentation occurs at term, most Obstetricians in the hospital will opt for vaginal delivery when the factors (mentioned earlier) which favour its conduct are present and contraindications have been excluded. This management plan including the option of a primary elective Caesarean section and their known outcomes are usually discussed with parturient who is often allowed to make the final informed choice.

The outcome of breech deliveries at term from this approach has never been studied in the centre. This retrospective study was therefore undertaken to determine the perinatal outcome and thus evaluate our present mode of management of breech presentations at term with a view to improving on our current management modalities and thus further reduce the foetal morbidity and mortality from breech deliveries. Our broad objective was to assess the perinatal outcome of the babies and ascertain any relationship with mode of delivery. The findings, we hope will not just be an audit and an aid in improving our management of this common Obstetric problem in our centre; but also contribute to the body of knowledge on the existing controversy.

**MATERIALS AND METHODS**

This study was carried out at the Obstetric unit of the University of Uyo Teaching Hospital. The sources of information were the labour ward register of all deliveries that took place between January 1st, 2008 and December 31st, 2010 and case notes of all women who had breech delivery at term within the period. The data from the case notes were analysed retrospectively. Information obtained included the total number of deliveries

during the study period, maternal socio-demographic characteristics, booking status, mode of delivery and perinatal outcome. These data was confirmed by comparison with information on the retrieved patients' case notes while complimentary information was obtained from the Obstetric theatre register as well as the neonatal (special baby care and sick baby) units of the hospital. The results of the findings were presented in simple tables of proportion. Frequency and cross-tabulation was done, and a likelihood ratio chi square( $X^2$ ) was used to test for association between variables at a P-value of less than 0.05 since some variables had frequencies less than 5.

Excluded from the analysis were all non-breech deliveries, preterm breech deliveries, and babies delivered with gross congenital anomalies incompatible with normal extra-uterine existence.

**RESULTS**

There were a total of 5007 deliveries during the three years study period, 190 of whom had breech presentation at term. The prevalence of breech deliveries at term was therefore 3.79%.

The average age of the women was 28.7years with the majority, 72(37.9%) being in the 26-30 years age range. One hundred and fifty-six (82.1%) were booked for antenatal care while 34(17.9%) were unbooked. Most of the clients (69.5%) had had between 1 and 4 previous deliveries, while 14.7% and 15.8% were nullipara and grand multiparas respectively (Table 1).

**Table 1: Socio-demographic Characteristics of Women Delivered with Breech Presentation at Term**

Variables	Frequency	Percentage
<b>Age group(years)</b>		
16-20	3	1.6
21-25	51	26.8
26-30	72	37.9
31-35	43	22.6
36-40	21	11.1
<b>Parity</b>		
0	28	14.7
1-4	132	69.5
5 or more	30	15.8
<b>Booking status</b>		
Booked	156	82.1
Unbooked	34	17.9
<b>Total</b>	<b>190</b>	<b>100</b>
Ninety-eight (51.6%) had assisted vaginal		

delivery, while 27.4% and 21.1% had elective and emergency Caesarean sections respectively (Table 2).

**Table 2: Mode of Delivery of Women with Breech Presentation at Term**

Mode of delivery	Frequency	Percentage
Elective CS	52	27.4
Assisted breech delivery	98	51.6
Emergency CS	40	21.0
<b>Total</b>	<b>190</b>	<b>100</b>

One hundred and forty-two (74.7%) of the babies had Apgar scores of 7 and above while 24(12.6%) had Apgar scores of 1 - 6. There were 16(8.4%) fresh and 7(4.2%) macerated stillbirths respectively. Whereas there was no mortality among babies delivered by elective Caesarean section, 16(20.3%) of the 24 babies delivered by assisted breech deliveries ended up as fresh still births (Table 3).

**Table 3: Perinatal outcome (Apgar scores at 5mins) of Breech Deliveries at Term**

Apgar score	Frequency	Percentage
7 or more	142	74.7
1 - 6	24	12.6
0	24*	12.6
<b>Total</b>	<b>190</b>	<b>100</b>

\* includes FSB(fresh stillbirths)-16, MSB (macerated stillbirth)-8

There was a statistically significant association between the perinatal outcome, measured by Apgar scores at 5minutes and mode of delivery of singleton breech deliveries at term ( $X^2= 30.66, P < 0.001$ ) (Table 4).

**Table 4: Relationship between Apgar at 5mins and mode of delivery for breech at term**

There was a statistically significant difference

Mode of delivery	Apgar score at 5mins			$X^2$	P-value
	7 & above	1-6	0		
ELCS	49	3	0	30.66	0.001
AVD	59	18	21		
EMCS	34	3	3		

between Apgar score at 5minutes and mode of delivery ( $X^2= 30.66; P < 0.001$ )

**NB:** [CS, Caesarean section; FSB, fresh stillbirth, MSB, macerated stillbirth, ELCS, elective Caesarean section, ABD, assisted breech delivery, EMCS, emergency Caesarean section]

**DISCUSSION**

The prevalence of breech presentation at term in this study was 3.8%. This figure falls within the widely quoted range of 3-4% worldwide.<sup>1</sup> The prevalence is however higher than that found in a neighbouring Teaching Hospital in south-south Nigeria.<sup>13</sup> Incidences of 1.4%, 2.44%, 2.6%, 2.84%, 2.9% and 3.4% have variously been reported from centres across Nigeria.<sup>13-18</sup> The relatively higher prevalence of breech presentation in our study may be as a result of the hospital functioning not just as the only tertiary healthcare centre in the state, but also offering secondary level Obstetric care which is almost lacking in the state capital. This is evident by the significant contribution by unbooked patients to this work. In this study, the majority (82.1%) of the patients were women who registered for and received antenatal care with us. If external cephalic version is practiced routinely in the centre, and is carried for those booked patients who met the criteria, the prevalence of breech presentation at delivery would have been reduced significantly. However, an incidence of 4.7% has been reported in a prospective observational study from a tertiary health facility in Pakistan.<sup>19</sup>

The majority of the parturients in this study were between the ages of 26 and 30 years and parities between 1 and 4. This is similar to findings in the study by Ojiyi et al in a teaching hospital in Eastern Nigeria.<sup>15</sup> Booked patients constituted the majority; a finding that clearly shows that if ECV is routinely practiced by Obstetricians in the UUTH for women that meet the criteria, the incidence of breech delivery at term is likely to have been reduced drastically. Our study shows a Caesarean section rate (CSR) of 49.4% in association with breech deliveries at term. The CSR for delivery of term breeches in our study is higher than values of 27.8%, 33.3% and 37.1% found in Orlu<sup>15</sup>, Nnewi<sup>14</sup> and Calabar<sup>13</sup>, respectively but much lower than CS utilisation rates for breech delivery of 78% and 87% in Oshogbo<sup>17</sup> and Lagos<sup>18</sup> respectively. This wide

attending ante-natal clinics.<sup>10-13</sup> Reported prevalence rates have ranged from 1.3% to 44.5%, depending on whether one or more of the pathogens responsible for STIs were investigated or self-reported STI. The 2013 Nigerian Demographic and Health Survey (NDHS) showed that 8% of women and 4% of men self-reported having STI or symptoms of STIs in the 12 months that preceded the survey.<sup>14</sup>

People who have STIs seek treatment from various places, in developed countries like the USA, they seek treatment from primary care providers mostly in private practice.<sup>15</sup> In Nigeria and many other developing countries many people with STDs first try to treat their infections themselves or seek treatment from alternative (non-professional) healthcare providers (e.g. traditional healers, patent medicine sellers), and only go to public health facilities or formal health care providers as a last option.<sup>16-18</sup> Although the 2013 NDHS shows that among those who self-reported having STIs, 40% of the women and 45% of the men said that they sought treatment for the STIs from clinics, hospitals, private doctors or other health professionals;<sup>14</sup> the survey didn't indicate the proportion of respondents according to the specific choices, nor did it seek to know if this was their first port of call for treatment for the STIs, but it is an established fact that only a minority of people with STIs present to public health facilities for treatment.<sup>19</sup>

Factors that influence where people with STIs seek treatment include- stigmatization, attitude of providers, confidentiality concerns, speed of service, cost, ease of access and the efficacy of treatment.<sup>16-18</sup> Due to these factors STD patients who decide to get treatment from clinicians in hospitals often go to private health facilities.<sup>17,19-20</sup> Ineffective and inefficient treatment services for STIs have been identified among the key factors that are fuelling the HIV epidemic in Nigeria<sup>14</sup>. Clinical services that offer STI care therefore provides an important window of opportunity for HIV prevention especially in people who are not HIV infected, as improvement in the management of STIs has shown a reduction in the incidence of HIV-1 infection in the general population by more than 40%.<sup>21</sup> From the foregoing; there have been some concerns about the quality of STD care provided by healthcare providers in different settings. For instance, an evaluation of STD care provided by

private general practitioners in South Africa revealed highest rate of effective treatment of 28% for urethral discharge<sup>22</sup>, while counselling, education or advice was documented at a rate of only one third of 100 STI contacts, among general practitioners in Australia.<sup>23</sup>

The challenge of frequent incorrect clinical diagnosis worsened by the expensive laboratory-confirmed aetiological diagnosis in resource limited countries, where there's inadequate trained manpower and laboratory facilities, led to the development of the syndromic management of STIs algorithm<sup>24</sup>. However, some Health Care providers have had difficulties in using the Syndromic Management algorithm<sup>25</sup>, this had led to the call for training, re-training and skills re-enforcement programs. Few studies have assessed the management of STIs in different groups in Nigeria, mostly adolescents<sup>26-27</sup>; incidentally there's no published study on the subject in Akwa Ibom State.

Having a better understanding of how clinicians in private practice (the settings where most patients with STIs are more likely to go for treatment) manage STIs, will add to the pool of knowledge and inform STI/HIV program managers on the need to target this group of healthcare providers. This study therefore aimed at assessing how clinicians in private health facilities in Uyo metropolis manage STIs; specifically the researchers sought to assess their knowledge and application of the Syndromic management of STIs algorithm.

**METHODOLOGY**

A cross-sectional survey of all registered private clinics in Uyo Metropolis, Akwa Ibom state was carried out between February and March 2010. The list of private clinics was obtained from the association of private medical practitioners' secretariat. There were 38 registered private clinics at the time of the study (February 2010) within Uyo metropolis. Inclusion criterion was registered clinics in Uyo metropolis that offered services inclusive of Primary Care Services or General Medical Practice. Four specialist clinics where general medical practice or reproductive health services were not offered, were excluded, e.g. Eye clinic, Dental clinic and ENT clinic; also Children's hospital; and therefore were not visited, since it was assumed that STI patients were unlikely to present to such facilities. All 34 clinics that met the inclusion criteria, were

## Management of Sexually Transmitted Infections (STIs) by Clinicians in Private Health Facilities in Uyo: Implications for Control of Human Immuno-Deficiency Virus (HIV) Infection

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### ABSTRACT

*There's ample evidence that other sexually transmitted infections, whether ulcerative or non-ulcerative, promote HIV transmission by increasing HIV infectivity and susceptibility through several mechanisms, mostly via direct biological pathway. Observational studies have revealed risk estimates of not less than 2, but more importantly, community level intervention studies have proven that timely provision of high quality STI services can significantly reduce HIV incidence. Health seeking behaviour of STI patients among the populace showed a preference for private health facilities, hence the conception of this study which aimed at assessing the pattern of management of STIs by Clinicians in Private Clinics in Uyo, Akwa Ibom State, Nigeria. It was a cross-sectional descriptive survey of clinicians in private clinics located in Uyo metropolis, using a structured self-administered questionnaire to collect the data. Twenty-three clinicians participated in the study, 20 males and 3 females. Majority (82.6%) diagnosed STIs using history, clinical and laboratory findings, 73.9% were aware of the existence of the algorithm for managing STIs, but only 47.8% used the algorithm consistently. Although 81.8% of the respondents admitted to offering their patients HIV Counselling and Testing; and 78.3% gave patient education and counselling, only 21.7% gave the correct and complete counselling details. It was concluded that most clinicians in Uyo do not manage STIs effectively, as complete patient education and counselling, a very important component of STI management is not offered by most them. This calls for skills reinforcement in STI management for clinicians in Uyo and Akwa Ibom State.*

**Keywords:** Sexually Transmitted Infections, STI algorithm, Clinicians, Private Clinics.

### INTRODUCTION

Infections which spread predominantly by sexual contact- vaginal, anal and oral sex- are referred to as sexually transmitted infections (STIs). A person with STI may not have obvious symptoms of disease; therefore, the term "sexually transmitted infection" is more commonly used than "sexually transmitted disease" (STD).<sup>1</sup> Although the Human Immune-deficiency Virus (HIV) infection is often included among STIs, especially in Africa, and rightly so because of its main route of transmission, this study considered other STIs excluding HIV.

In 2013, global statistics showed that more than 1 million people acquired a sexually transmitted infection every day; while yearly, an estimated 500 million people acquired either

chlamydia, or gonorrhoea, or syphilis or trichomoniasis. STIs have a great impact on sexual and reproductive health and rank among the top 5 disease categories for which adults seek health care, even though majority are asymptomatic. STIs can lead to cervical cancer, pelvic inflammatory disease, adverse pregnancy outcomes and infertility.<sup>1</sup> It has been observed that STIs can increase the risk of HIV acquisition and transmission by up a factor up to 10<sup>2</sup>.

The 2008 estimates of STIs show that WHO African region had 92.6 million new cases of *C. trachomatis*, *N. gonorrhoeae*, Syphilis and *T. vaginalis*.<sup>3</sup>

The overall prevalence of STIs in Nigeria's general population doesn't seem to be known. Several studies have been done in different groups of people, some perceived to be at high risk. For instance sex workers, men who have sex with men, injection drug users, mobile populations (long distant drivers), patients attending special clinics (STI) and adolescents<sup>4,9</sup>. Many studies have also been conducted among pregnant women (who are also vulnerable)

variation in CS utilisation for the delivery of singleton breech presentation at term may be a product of differences in criteria used for selection of women for vaginal breech delivery and a more liberal resort to elective CS following the term breech trial. Other possible reasons include the presence of other complications in association with breech presentation which may have tilted the balance in favour of abdominal delivery. In our study, more than 80% of the primigravidas, comprising 15% of the study population were delivered by Caesarean section, mainly as elective procedures. Although the existence of breech presentation in a nulliparous patient is not an absolute indication for elective CS, a statistically significant decrease in perinatal mortality has been found when primigravidas with breech presentation at term were delivered by elective Caesarean section.<sup>13</sup>

The perinatal outcome in our study showed a morbidity rate, evidenced by a 5minutes Apgar score between 1 and 6 of 12.6% as well as a statistically significant association between perinatal outcome and mode of delivery. There was no foetal mortality and there were fewer babies with birth asphyxia among those delivered by Elective caesarean section when compared to those delivered vaginally and by emergency Caesarean section. The relatively better perinatal outcome found in the emergency CS group compared to the assisted breech delivery group implies that an early intervention and recourse to abdominal delivery in the presence of perceived or possible difficulty during a planned conduct of vaginal breech delivery improves the perinatal outcome. A statistically significant association between Apgar scores at 5minutes and mode of delivery was also found in Nnewi<sup>16</sup>, Lagos<sup>18</sup>, and Ile-Ife<sup>20</sup> in Nigeria, and is consistent with the findings from the term breech trial(TBT).<sup>5</sup> In an attempt to determine whether the results of TBT have to be taken into account when counselling pregnant women in central Europe, it was found that the difference in perinatal morbidity between elective CS and attempted vaginal breech was not statistically significant and as such vaginal breech delivery was still warrantable.<sup>21</sup>

The finding of more fresh stillbirths in the assisted vaginal delivery group with none among babies delivered by elective CS was also found in the term breech trial as well as other reviews across Nigeria.<sup>5,16-18</sup>

In conclusion, our retrospective analysis

has shown a significant association between Apgar scores at 5 minutes and mode of delivery with elective CS offering a better outcome. Elective Caesarean section can thus be recommended in our environment when perinatal outcome is the primary concern. However, the possible higher maternal morbidity and aversion associated with Caesarean section and a comparison of these with outcome is the subject of the second phase of this study which is currently being awaited.

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