UMBILICAL ENDOMETRIOSIS FOLLOWING CONCURRENT ABDOMINAL MYOMECTOMY AND UMBILICAL HERNIORRHAPHY DURING MENSTRUATION - A CASE REPORT.

Abiodun S Adeniran [FWACS, FMCOG]*, Adegboyega A Fawole [FWACS, FICS]*, Tunde S Afolayan [MBBS]*, Henry G Ano-edward [BSc, MBBS, MPH]**

**Department of Obstetrics and Gynaecology, University of Ilorin Teaching Hospital, Ilorin, Nigeria.*
***Department of Pathology, University of Ilorin Teaching Hospital, Ilorin, Nigeria.*

ABSTRACT

Umbilical endometriosis is a rare form of extra pelvic endometriosis and certain risk factors have been known to increase its occurrence. We present a woman, who presented with an umbilical mass which bleeds cyclically. The mass developed following abdominal myomectomy and concurrent repair of umbilical hernia during menstruation. She had excision biopsy of the umbilical mass and umbilical reconstruction; histological examination confirmed endometriosis.

The highpoints of this presentation are to emphasize the need to avoid abdominal myomectomy during menstruation and discourage concurrent surgical procedures because these increase the risk of endometriosis after the procedure.

Key words: Umbilical endometriosis, Myomectomy, Herniorraphy

INTRODUCTION

In the late nineteenth century, it was Sampson who first coined the word endometriosis to describe ectopic tissues possessing histologic structure and function similar to that of the uterine mucosa. Endometriosis is defined as the presence of endometrial glands and stroma outside the endometrial lining. It may occur in up to 12% of women of reproductive age [1] and it can be pelvic [genital] or extra pelvic [extra genital]. Up to 80% occurs in the ovary [2], other areas in the pelvis include the round ligament, fallopian tubes, Pouch of Douglas, utero-sacral ligament and pelvic side wall. Extra genital cases are less common but has been described in almost every area in the body including bowel, urinary bladder, umbilicus, surgical scars, lungs, brain, appendix, colon and inguinal canal [1-6]. Explanations about the pathogenesis of endometriosis include the hypothesis of migration theory by Sampson which explains ovarian endometriosis while the coelomic induction theory which explains peritoneal endometriosis while scar endometriosis is explained by the migratory pathogenesis theory

Corresponding Author: **Abiodun S Adeniran**
Department of Obstetrics and Gynaecology, University of Ilorin Teaching Hospital Ilorin, Nigeria.
E-mail acrowncord@yahoo.com
Tel: +234805 753 4788

wherein the endometrial tissue is dispersed via vascular and lymphatic channels due to surgical manipulation [2-4].

Cutaneous endometriosis is rare and can be primary or secondary following procedures like myomectomy, laparoscopy, laparotomy, hysterectomy, Caesarean section or episiorrhaphy. This may be due to implantation of viable endometrial tissue during the procedures or their transport via vascular channels [1]. Umbilical endometriosis is a form of cutaneous endometriosis; it may be primary or secondary following surgical procedures [1]. It has been suggested that cutaneous endometriosis should be suspected in any female presenting with cyclic pain emanating from a mass in the vicinity of an abdominal surgical scar or the umbilicus [5].

CASE PRESENTATION

A 38years old Para 0 + 0 woman presented with cessation of menstruation and umbilical swelling of four years duration. The swelling which has been non progressive, showed cyclical slight increase in size with corresponding pain and bleeding approximately every four weeks. There was no history of dyspareunia, pelvic pain, diarrhea or constipation.

Four years earlier, she had abdominal myomectomy and umbilical herniorrhaphy done simultaneously at a private hospital on account of symptomatic uterine fibroid with menorrhagia; the surgeries were done during her menstruation and present symptoms started after the procedures. She has been married for 8 years with no conception.

Following the cessation of menstruation, she thought that she was pregnant until a urine pregnancy test performed was negative. Before presenting to us, the investigations carried out included an abdomino-pelvic ultrasound scan which showed a bulky uterus with multiple uterine fibroid nodules with the endometrial plate showing intermittent areas of defect that were suggestive of adhesions. There were no other pelvic or intra-abdominal masses.

Hysterosalpingography showed an irregular outline in the cervical canal with only a small portion of the cervico-uterine segment seen. The rest of the uterine cavity and fallopian tubes were not demonstrated. The conclusion was that of severe uterine adhesions.

On examination, she was not pale, afebrile and anicteric. The abdomen was full and moved with respiration. There was a right paramecia scar which was about 3cm in width suggesting that it healed by secondary intention. A hard, nodular, dark bluish, non-tender mass was present on the umbilicus measuring 2 x 2 cm with no bleeding from it [Fig 1]. The uterus was enlarged and compatible with a 14 weeks size gestation. Pelvic examination showed normal vulva and vagina, the cervix was posterior, firm, 2cm long and cervical Os was closed. There was no cervical excitation or tenderness. There was no thickening of the utero-sacral ligament and there was no tenderness over the recto-vaginal septum, pouch of Douglas or adnexa. The uterus was bulky and compatible with a 14weeks size gestation.

The summary of the assessments were Secondary amenorrhoea due to Asherman syndrome, Umbilical endometriosis and recurrent uterine fibroids.

She was counseled and she expressed her concern that resumption of menstruation and removal of the umbilical mass were of utmost priority to her. She opted for and had the

procedures of excision of the Umbilical mass and umbilical reconstruction, Adhesiolysis and Intrauterine device insertion were also performed. This was followed by hormonal support with unconjugated estrogen and progestogen.

The histology findings of the excised Umbilical mass confirmed umbilical endometriosis. It showed sections of skin tissue with acanthosis and hyperkeratosis of the epidermis with the dermis infiltrated by endometrial tissue. The endometrial tissues were composed of numerous endometrial gland and stroma; the glands were round to oval and lined by columnar epithelial cells while the stroma was loose and composed of spindle shaped cells.

At eight weeks follow up visit, her Umbilicus appeared normal with no evidence of recurrence; she was still on the hormones and was yet to resume menstruation.

CONSENT

A written consent was obtained from the patient after counseling about the desire for publication of the case. She voluntarily gave her consent because she believed that this will help in decision making during management of other patients in the future.

DISCUSSIONS

Umbilical endometriosis is a form of cutaneous endometriosis; its primary form is much rarer than secondary umbilical endometriosis which is usually found in scars of surgical procedures. It presents as an umbilical swelling which is usually bluish black, may be slightly painful especially during menstruation with associated swelling and slight bleeding. The risk for umbilical endometriosis was increased as in this case by performing abdominal myomectomy during menstruation when there is abundance of viable endometrial tissue for possible inadvertent implantation and performance of an additional surgical procedure during the myomectomy which was umbilical herniorraphy in this case. The raw surfaces from the surgical scar presented a good site for implantation of endometrial tissue during the procedure.

Presence of cutaneous endometriosis is not necessarily associated with endometrial tissue elsewhere unless there are symptoms to suggest this [1,3] . Umbilical endometriosis is best diagnosed and cured with excision biopsy [1-6] and histological confirmation as was done in this patient. Other diagnostic methods have been proven to be non-specific and unreliable in literature [3]. There is always a chance of coexisting pelvic endometriosis which usually present as chronic pelvic pain. Although there are no recommendations or guidelines to perform simultaneous laparoscopy to diagnose pelvic endometriosis while performing local excision of umbilical endometriosis; cases are usually individualized [3]. However, in the presence of associated pelvic endometriosis, pelvic laparoscopy, hormonal therapy with Gonadotrophin Releasing Hormone [GnRH] analogue, antioestrogens like Danazol or excision of pelvic endometrioma may be required [2,3,6]. In the case presented, there was no evidence of pelvic endometriosis or endometrioma; thus, she had excision biopsy and umbilical reconstruction.

Differential diagnosis of umbilical endometriosis which should be entertained includes Umbilical granuloma, Umbilical inclusion cyst, residual embryonic tissue, Umbilical melanoma, benign lesions of the Umbilicus and primary or secondary metastatic

ILLUSTRATION- Figure 1

Figure 1: A right paramedian scar and an Umbilical mass [endometriosis]

adenocarcinoma [Sister Mary Joseph's nodule].

Conclusion

Performing myomectomy during menstruation provides significant amount of endometrial tissue for implantation on other body surfaces, this provide an increased opportunity for the formation of Umbilical endometriosis. Clinicians should avoid this practice to prevent such complications.

REFERENCES

1. Kerr OA, Mowbray M, Tidman MJ. An umbilical nodule due to endometriosis. Acta Dermato-Venereologica 2005; 86[3]:277-278. [DOI: 10.2340/000155550056].
2. Weng C, Yang Y. Villar's Nodule- Umbilical endometriosis. N Eng J Med 2011; 364: e45.
3. Kodanpani S, Pai MV, Mathew M. Umbilical laparoscopic scar endometriosis. J Hum Reprod Sci. 2011; 4[3]:150-152.
4. Schachter LR, Tash J, Olgac S, Bochner BH. Umbilical endometriosis. J Urol. 2003; 170:2388-2389.
5. Rai R, Sathyamoorthy A, D'Souza C. Umbilical endometriosis. J Clin Diagnostic Res. 2008; 2[6]:1203-1206.
6. Teh W, Vollenhoven B, Harris PI. Umbilical endometriosis, a Pathology that a gynaecologist may encounter when inserting Verres needle. Fertil Steril 2006; 86[6]:1764e1-1764e2.

UPTAKE OF FAMILY PLANNING SERVICES AT THE UNIVERSITY TEACHING HOSPITAL, ADO-EKITI.

O.P. Aduloju MB; BS, FWACS[1]

Department of Obstetrics and Gynecology, University Teaching Hospital, Ado-Ekiti.

ABSTRACT

Introduction: The continued rise in population in various countries all over the world and the low prevalence of contraceptive use are major issues especially in the developing countries.

Objectives: To determine the pattern of contraceptive choices among the family planning acceptors of the hospital, factors affecting their choice of methods and the influence of their male partners on the acceptance of family planning methods.

Method: It was a descriptive study and a semi-structured questionnaire was administered to women attending the family planning clinic of the University Teaching Hospital, Ado-Ekiti between January 2010 and December 2011.

Results: A total of one thousand and nine clients attended the family planning clinic of the hospital during the period of the study. The age of the respondents was between 17 and 54 years with a mean age of 32.28±7.199years while their parity ranged between 0-9 with a mean parity of 2.62±1.818. 77.6% of them were in a marital relationship. Injectable forms of contraception were the commonest family planning type while intrauterine contraceptive device was the commonest method accepted. Child spacing was the commonest indication for seeking family planning. Majority (77.1%) of them had the support of their husbands. 68.8% of the acceptors would not have the support of their husbands for permanent method while condom was the preferred male method for their partners by the respondents. Higher educational level of the women was associated with awareness and use of one method or the other among the respondents (p value 0.02) and desire for their partner to also use family planning method (p value 0.01). Also higher educational attainment of the husband was associated with increased uptake of family planning methods by the women (p value 0.03).

Conclusion: Family planning is an important key towards reduction of unwanted pregnancy and abortion related deaths. Health education of the populace would ensure that women accept family planning methods by correcting the various misconceptions about this.

Keywords: Uptake, Family Planning Services, Women,

INTRODUCTION

Population explosions and high rates of unwanted pregnancy had been a major issue in reproductive health in the world especially in the last forty years of the twentieth century and these still remain a major challenge[1]. When human reproduction is left unchecked, it results

Correspondence: Dr O. P. Aduloju,
Department of Obstetrics and Gynecology,
University Teaching Hospital, Ado-Ekiti.
E mail: peter.aduloju@yahoo.com
/toluy2k2000@yahoo.com

into high birth rates, bringing about large family size with the negative effects on the health of the respective mothers and children. Consequently, this leads to negative impact on the family, the community and the nation at large as a result of economic overload in covering the additional demand. Indeed, uncontrolled births can destroy a nation's development aspirations and prevent its people from enjoying an improved standard of living[2]. These concerns were the impetus for the introduction of various family planning (FP) programs in many part of the world with major objectives of reducing maternal morbidity and mortality and improving the well being of the populace[3]. Contraception has been described as on the greatest advances of the twentieth century and in the last two decades its use has increased substantially especially in the developed countries[1,4].

Family planning has been found to be able to prevent at least 25% of maternal deaths and the value of effective use of contraceptive methods in preventing unwanted pregnancy in our community has been highlighted in previous study[5]. The high level of contraceptive awareness and the low level of usage have also been established[6]. Despite the great advantages and benefits, not many couples use the modern methods of contraception[1]. Infact, in developing countries, contraceptive use is abysmally low by the international standards[7]. In Nigeria, the current contraceptive prevalence rate range between 7-14.8%[8,9].

Contraceptive choices among our women vary and this variation also occurs from one part of the country to the other. Factor responsible for this variation may include cultural barriers, religion, cost, low literacy level, husband's or partner's approval or disapproval, availability, accessibility, fear of side effects and desire for large family size[9,10].

This study was carefully carried out at the University Teaching Hospital, Ado-Ekiti to determine the pattern of contraceptive choices among the family planning acceptors of the hospital, factors affecting their choice of methods and the influence of their male partners on the acceptance of family planning methods.

METHODS

The study was a descriptive study carried out at the family planning clinic of the University Teaching Hospital, Ado-Ekiti between January 2009 and December 2010. The tool for data collection from the respondents was a semi-structured questionnaire which was administered to women attending the family planning clinic in the hospital. The questionnaires were administered by the nursing staffs of the clinic. A simple random sampling method involving one out of every two consenting clients seeking family planning services at the clinic were interviewed over the period. The research instrument was used to elicit information about the socio-demographic characteristics of the respondents, pattern of contraceptive choices among the attendee, indication for their choice of method, partner's support on the choice of method and the attitude of the women to contraceptive use by men. About 1009 women who met the inclusion criteria were recruited.

The data collected were entered and analyzed with the use of Statistical Package for Social Sciences (SPSS) software, version 15. The results were summarized using relevant descriptive statistics (such as means) and presented using frequency tables and

percentages. The association between discrete variables was tested using chi-square test. Statistical significance was accepted at p value < 0.05.

RESULTS

About one thousand and nine clients attended the family planning unit of the University Teaching Hospital between January 2009 and December 2010.

From Table 1

The age of the respondents was between 17 and 54 years. Majority 850 (84.5%) of the women were between 21 and 40 years of age while about 107 (10.6%) were above 40 years of age. The mean age of the respondents was 32.28 ± 7.199years. The parity of the women ranged between 0 and 9 and the mean parity is 2.62 ± 1.818. 808 (77.6%) of the family planning acceptors were married while 210 (19.9%) of them were single. Of the 808 women who are married, 750 (92.8%) of them are in a monogamous relationship while 58 (7.2%) of the women are in a polygamous relationship. Majority 678 (67.2%) of the women had tertiary education while 78 (7.7%) of them had primary or no formal education. Also, 687 (68.1%) of the husbands of the respondents had tertiary education while 153 (15.2%) of them had primary or no formal education. 490 (47.6%) of the respondents were civil servants, 348 (34.5%) of them were traders and 101 (10%) of the women were students.

From Table 2

Injectables form of contraception was the commonest type family planning used by the respondents 397 (39.3%) while implant was the least type demanded by the family planning acceptors 49 (4.9%). However, intrauterine contraceptive device method was mostly used by the respondents 353 (3%) while implant was the least accepted method of family planning by the women 49 (4.9%).

From Table 3

In majority 481 (47.7%) of the women, child spacing was the indication for seeking family planning, completed family size in 353 (35%) of the respondents and prevention of pregnancy was the indication for use of family planning in 175 (17.3%) of the women. 778 (77.1%) of the respondents had the support of their husbands for use of family planning, 101 (10%) of them was not supported by their husbands and 130 (12.9%) of the family planning acceptors cannot say now. Majority 695 (68.8%) of respondents would not have the support of their husbands for permanent method of contraception while 314 (31.1%) of them responded that their husbands would support them to do permanent method. 573 (56.8%) of the respondents preferred condom as male method of choice for their partners while 130 (12.9%) of them would not want their husbands to use any method.

From Table Four,

Increasing level of education of the women was associated with increasing awareness and use of contraception among the respondents and this was statistically significant at p value of 0.02. More women with higher level of education also want their male partner to use male contraception and this was statistically significant at p value of 0.01. Men with higher educational attainment are more likely to support their wives to accept family planning methods. This was found to be statistically significant with a p value of 0.03.

Table 1 Showing The Sociodemographic Characteristics Of The Family Planning Acceptors At The University Teaching Hospital Between January 2009 And December 2010.

CHARACTERISTICS	FREQUENCY (n=1009)	PERCENTAGES (%)
AGE OF WOMEN (YRS)		
16-20	52	5.2
21-25	153	15.2
26-30	236	23.4
31-35	204	20.4
36-40	257	25.5
>40	107	10.6
MARITAL STATUS		
Married	808	80.1
Single	201	19.9
EDUCATIONAL STATUS OF WOMEN		
No formal / primary	78	7.7
Secondary	253	25.1
Tertiary	678	67.7
EDUCATIONAL STATUS OF HUSBAND OF RESP		
No formal / primary	153	15.2
Secondary	169	16.7
Tertiary	687	68.1
RELIGION		
Christian	781	77.4
Muslim	228	22.6
FAMILY SETTING		
Monogamous	750	79.8
Polygamous	58	5.7
Single	201	14.5
OCCUPATION		
Housewife	6	0.6
Apprentice	23	2.3
Applicant	26	2.6
Fashion designer	25	2.5
Student	101	10.0
Trader	348	34.5
Civil servant	490	47.6

Table 2 Showing Distribution Of The Types And Methods Of Contraception Accepted By The Respondents.

CHARACTERISTICS	FREQUENCY (n=1009)	PERCENTAGE (%)
TYPES OF CONTRACEPTION		
Implants	49	4.9
Male condom	52	5.2
Oral pills	156	15.5
IUCD	353	35.0
Injectables	397	39.3
TYPES OF METHODS ACCEPTED		
Implants	49	4.9
Progesterone only pill	49	4.9
Male condom	52	5.2
Combined oral pill	107	10.6
Noristerat	145	14.4
Depo provera	254	25.2
IUCD	353	35

TABLE THREE

CHARACTERISTICS	FREQUENCY (n= 1009)	PERCENTAGES (%)
INDICATION FOR CONTRACEPTION		
Child spacing	481	47.7
Completed family size	353	35
Prevention of pregnancy	175	17.3
PARTNER'S SUPPORT FOR CONTRACEPTION		
Yes	778	77.1
No	101	10.1
Do not know	130	12.9
PARTNER SUPPORT FOR PERMANENT METHOD		
Yes	314	31.1
No	695	68.8
MALE METHOD OF CHOICE		
Condom	573	56.8
Male sterilization	173	17.1
Withdrawal	133	13.2
None	130	12.9

Table 4: Shows Educational Status Of The Women And Awareness Of Male Contraception And Use Of Contraception By Husband.

EDUCATION STATUS OF WOMAN	AWARENESS OF MALE METHOD OF CONTRACEPTION						
	Yes		No		X^2 value	df	P
	n =820	%	n= 189	%			
None	0	0	4	2.1	21.597	3	0.02
Primary	23	2.8	51	26.9			
Secondary	174	21.2	79	41.8			
Tertiary	623	76.0	55	29.1			

EDUCATION STATUS OF WOMAN	USE OF CONTRACEPTION BY HUSBAND						
	Yes		No		X^2 value	df	P
	n =731	%	n= 278	%			
None	0	0	4	1.4			
Primary	48	6.6	26	9.3	17.216	3	0.01
Secondary	198	27.1	55	20.1			
Tertiary	485	66.3	193	69.4			

Education status of husband	Use of contraception by woman						
	Yes		No		X^2 value	df	P
	n =887	%	n= 114	%			
None	41	4.6	15	13.1			
Primary	82	9.2	15	13.1	19.692	3	0.03
Secondary	144	16.3	25	21.9			
Tertiary	620	69.9	59	51.7			

DISCUSSION

This study revealed that the adolescents were the least seekers of family planning services despite the reported high level of abortion related morbidity and mortality among them[10]. This may be due to lack of confidentiality, negative attitudes of health providers within the health system, lack of information and fear of parental retribution which are responsible for the inadequate pattern of health seeking behavior by the young people for reproductive health services[10,11]. The increasing age and parity of the women associated with more use of contraception was similar to findings reported by Chigbu et al[10] and Okpani et al[12]. This may be attributed to more experience associated with increasing age unlike in the adolescents. Majority of the family planning acceptors were married in a monogamous or nuclear family and this may be due to the relative privacy and freedom in decision making compared to that in polygamous family. This is similarly reported by Ibrahim et al[13].

The acceptance of family planning by the women who participated in this study and their desire for their husband to use family planning method increased with the level of the literacy. This may be due better awareness, knowledge and understanding of the advantages and benefits in the use of family planning methods. This is similarly reported by Ibrahim et al[13] and Oye-Adeniran et al[14]. The acceptance of family planning was low among the women who are Muslims in this study compared to their Christian counterpacts and this is similar to findings of Ibrahim et al[13] and Oye-Adeniran et al[14]. This is because religious plays a significant role in contraceptive use and Muslims tend to have a higher disapproval rate for contraceptive use than other religions.

The commonest contraceptive method accepted in this study is intra-uterine contraceptive device. This is similar to findings earlier reported by Orji et al[15] and but differs from the reports of Ibuouf et al[16] and Tersia-Kenny et al[17] where contraceptive pills were the most frequently used method. This may be because intra-uterine contraceptive device is the method of choice in clinic based services in Nigeria, relatively long period of use and the confidentiality of the method once inserted. While IUCD users must of necessity visit the clinic, many users of oral contraceptive pills, condom etc need not visit the clinic before starting to use them[15]. Condom was the commonest male method of choice among the husbands of the acceptors in this study and this may due to educational campaigns and social marketing skills of condoms in response to the prevention of sexually transmitted diseases especially Human Immunodeficiency Virus. This was similarly reported by Oye-Adeniran et al[14].

Majority of the women in this study had the support of their husband in accepting one form of family planning method or the other. This is similarly reported by Oye-Adeniran et al[14] and Orji et al[15]. This is line with the call for male involvement in reproductive health matters which would improve the user effectiveness of the method chosen by the women and reduce the unmet need for contraception[1]. However, the desire to accept both male and female permanent method of contraception (sterilization) was low among the women and their husbands and this was not improved by their educational level. This may be due to lack of proper information and knowledge about method of contraception. Therefore, health education and social

marketing method directed towards this would correct the various misconceptions of couples about permanent method of contraception and leads to its increased acceptance and uptake.

Family planning plays a vital role in the reduction of unwanted pregnancy and abortion related deaths and deaths from other causes maternal mortality by limiting family size. Government should therefore promote the utilization of family planning services toearsd achieving the millennium development goal 5.

REFERENCES

1. Adeyemi, A. B., Ijadunola, K.T., Orji, E. O., Kuti, O., Alabi, M. M. The unmet need for contraception among Nigerian women in the first year post-partum. The Euro Journal of Contraception and Reproductive Health Care 2005; 10 (4): 229-234.
2. Orji, H.W. Mortality associated with fertility and fertility control. Int Fam Plann Perspect 1983; 15: 57-63.
3. Abasiattai, A.M. Current Concepts in Contraception. Niger Journal of Medicine 2006;15 (4): 364-372.
4. Adewole, I.F., Oye-Adeniran, B.A., Iwere, N., Oladokun, A., Gbadegesin, A., Babarinsa, I.A. Contraceptive usage among abortion seekers in Nigeria. West Afri J Med, 2002; 21(2): 112-114.
5. Okonofua, F.E., Odimegwu, C., Ajabor, H., Duru, F.H., Johnson, A. Assessing the Prevalence and Determinants of unwanted pregnancy and induced abortion in Nigeria. Stud Fam Plann, 1999; 25: 86-91.
6. Alihonon, E., Carre, N., Capochiohi, V., Thonneau, P. Contraceptive continuation and its determinants in Benin. Contraception 1997; 55: 97-102.
7. Oye-Adeniran, B. A., Adewole, I.F., Odeyemi, K.A., Ekanem, E.E., Umoh, A.V. Contraceptive Prevalence among young women in Nigeria. Obstet Gynaecol 2005; 25 (2):182-185.
8. Ibekwe, P.C., Obuna, J.A. Awareness and Practice of Emergency Contraception among University Students in Abakaliki, South-East Nigeria. Nig Journ Clinical Pract. 2010; 13(1): 20-23.
9. Odimegwu, C.O. Family Planning attitudes and use in Nigeria. A factor analysis. Int Fam Plann Perspect 1999; 25: 86-91.
10. Chigbu, B., Onwere, S., Aluka, C., Kamaru, C., Okoro, O., Feyi-Waboso, P. Contraceptive choices of rural women in Rural South Eastern Nigeria. Nig Journ Clinical Pract. 2010; 13(2): 195-199.
11. Okonofua, F.E., Ogonor, J.I., Omorodion, F.I., Coplan, F.M., Kaufman, J.A., Heggenhough, K. Assessment of services for the prevention and treatment of sexually transmitted diseases among adolescents in Nigeria. Sex Trans Dis 1999; 26 (1): 184-190.
12. Okpani, A.O.U., Kua, P.I. Contraception with Medroxyprogesterone Injections in Port-Harcourt, Nigeria. Trop. J. Obstet. Gynaecol. 2002; 19 (2): 107-111.
13. Ibrahim, M. T., Sadiq, A.U. Knowlegde, Attitude, Practices and Beliefs about Family Planning among Women attending Primary Health Care Clinics in Sokoto, Nigeria. Nigerian Journal of Medicine 1998; 8(4): 154-158.
14. Oye-Adeniran, B.A., Adewole, I.F., Odeyemi, K.A., Ekanem, E.E., Umoh, A.V. Contraceptive Prevalence among young women in Nigeria. J. Obstet. Gynaecol. 2005; 25(2): 182-185.
15. Orji, E.O., Onwudiegwu, U. Prevalence and

Determinants of Contraceptive Practices in a defined Nigerian Population. J. Obstet. Gynaecol. 2002; 22(5): 540-543.

16. Ibuouf, A.H., Borne, H.W., Maarse, J.A. Utilization of Family Planning Services by married Sudanese women of reproductive age. East Mediterr Health J. 2007; 13(6):1372-1381.
17. Tengia-Kessy A., Rwabadongo, N. Utilization of modern Family Planning Methods among women of Reproductive age in a rural setting: The case of Shanyaga rural district, Tanzania. East Afr J of Public Health, 2006; 3(2): 26-30.