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A Cross Sectional Study to Evaluate the Prevalence of Symptoms of Menopause with Special Reference to Osteoporosis in Post Menopausal Women Attending Out Patient Department of a Teaching Medical Institute

By Tejal Poddar, Geeta Niyogi & Kirti Bendre
KJ Somaiya Medical College

Abstract- Natural menopause is defined by the World Health Organization (WHO) as the "permanent cessation of menstruation resulting from the loss of ovarian follicular activity,"[1]. The word is derived from the Greek men (month) and pausis (cessation). This cross sectional study was carried out on the women attending Out Patient Clinic of Gynaecology Department of a teaching medical institute. For this study, sample size of 373 patients was decided as per use of appropriate statistical calculations. An Osteoporosis specific score sheet was designed. A complete physical examination was conducted along with local examination for all patients which included per speculum and per vaginal examination. Special investigations were conducted for all patients to evaluate symptoms such as pap smear, breast examination and Bone Mineral Density. Bone mineral density was measured using DXA scan for the calcaneum bone.

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A Cross Sectional Study to Evaluate the Prevalence of Symptoms of Menopause with Special Reference to Osteoporosis in Post Menopausal Women Attending Out Patient Department of a Teaching Medical Institute

Tejal Poddar [α], Geeta Niyogi [σ] & Kirti Bendre [ρ]

Abstract- Natural menopause is defined by the World Health Organization (WHO) as the "permanent cessation of menstruation resulting from the loss of ovarian follicular activity,"[1]. The word is derived from the Greek *men* (month) and *pausis* (cessation). This cross sectional study was carried out on the women attending Out Patient Clinic of Gynaecology Department of a teaching medical institute. For this study, sample size of 373 patients was decided as per use of appropriate statistical calculations. An Osteoporosis specific score sheet was designed. A complete physical examination was conducted along with local examination for all patients which included per speculum and per vaginal examination. Special investigations were conducted for all patients to evaluate symptoms such as pap smear, breast examination and Bone Mineral Density. Bone mineral density was measured using DXA scan for the calcaneum bone. We concluded that most common symptom associated with menopausal transition was night sweats followed by muscle and joint pain, psychosexual symptoms and irritability. Bone mineral density test concluded 34.3% of the population were suffering from osteoporosis while 34% were suffering from osteopenia. There is a statistical correlation between BMD and lifestyle pattern. BMD is significantly reduced in the population suffering from symptoms muscle and joint pain. BMD is inversely proportional to the age since menopause. There is an increased risk for fractures among patients who underwent oopherectomy. There is an inverse correlation between BMD and since menopause.

I. Introduction

Natural menopause is defined by the World Health Organization (WHO) as the "permanent cessation of menstruation resulting from the loss of ovarian follicular activity,"[1]. The word is derived from the Greek *men* (month) and *pausis* (cessation). It is the culmination of some 50 years of reproductive aging—a process which unfolds as a continuum from birth through the menopause transition and ovarian senescence. The menopause transition represents a period of dynamic changes in reproductive and non reproductive tissues. The transition from the reproductive to the non-reproductive stage is the result of a reduction in the female hormonal production by the ovaries. This transition is normally not sudden or abrupt, it tends to occur over a period of years, and it is a natural consequence of aging. However, for some women, the accompanying signs and effects that can occur during the menopause transition years can significantly disrupt their daily activities and their sense of well-being.

The overall health and well-being of middle-aged women have become a major public health concern around the world. More than 80% of the women experience physical or psychological symptoms in the years when they approach menopause, with various distress and disturbances in their lives, leading to a decrease in the quality of life [2].

All women have more or less similar hormonal changes with menopause. However, the experience of each women is unique and is influenced by age, cultural background, health, type of menopause (spontaneous or surgical), child bearing desires and relationships. Women may view menopause as a major change in their lives either positive such as freedom from troublesome dysmenorrhoea or the need for contraception or negative such as feeling 'old' or loss of child bearing possibilities. Other women may feel that the menopause brings a cessation of sexual pleasure.

A total of 130 million Indian women are expected to live beyond the menopause into the old age by 2015.[3] Menopause is emerging as an issue owing to rapid globalization, urbanization, awareness and increase longevity in urban middle aged Indian women.

Menopause is a universal reproductive phenomenon but this reproductive landmark is not the same for all women in all cultures. The world population taken together shows a rough mean menopausal age of 40-50 years .[4]

As a first step towards the education of women on different aspects to menopausal symptoms and

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problems, one should have the insight of their problems and its preventive measures. Hence the need to assess the prevalence of menopausal problems and preventive health behaviors among selected groups of women is essential.

Menopause and osteoporosis are related to fragility fractures and constitute a major health problem, in terms of both individual suffering and financial costs. Age is also an important factor in the relationship between bone density and the absolute risk for fracture. Older women have a much higher fracture rate than younger women with the same bone density because of increasing risk from other factors, such as bone quality and tendency to fall.[5] Because of the deprivation of estrogen after menopause, women are more vulnerable to bone loss than men and women with early menopause are particularly at risk.

II. Materials and Methods

This cross sectional study was carried out on the women attending Out Patient Clinic of Gynaecology Department of a teaching medical institute. For this study, sample size of 373 patients was decided as per use of appropriate statistical calculations. These patients were selected by simple random sampling method. Post menopausal women beyond the age group 40 years attending the gynaecology out patient clinic were included in the study. Patients with age below 40 years or not attained menopause were excluded from the study. The study period was from January 2012 to August 2013.

Consent was taken from all the patients participating in the study .A broad Women Health questionnaire to identify mid life health problems was developed, which patients completed. This included complete history taking including age, parity, occupation ,age since menopause, past medical surgical history and specific history concerning menopausal symptoms. Subjects were graded according to their socio economic status according to the Kuppuswami classification. Lifestyle was graded as sedentary and active according to the following definition. Sedentary people were defined in two ways (1) those expending less than 10% of their leisure time expenditure in activities involving > 4 metabolic equivalents. (2) Those who did not practice any leisure – time physical activity and who also were above the median in the number of hours spent sitting down during leisure time. Metabolic equivalents represent the ratio of energy expended during a physical activity to the metabolic rate sitting quietly, and are independent of body weight.

An Osteoporosis specific score sheet was designed. A complete physical examination was conducted along with local examination for all patients which included per speculum and per vaginal examination. Special investigations were conducted for all patients to evaluate symptoms such as pap smear, breast examination and Bone Mineral Density. Bone mineral density was measured using DXA scan for the calcaneum bone.

Inferential statistics were given by Mann Whitney test & other tests of significance. Statistical analysis were executed to correlate between various variables. Sensitivity and specificity of each risk score were ascertained and cut off risk score for identifying osteoporosis and osteopenia were derived by comparing area under curve of each risk score on drawing receiver operational curve. Data was analysed by using SPSS Software version 16.0.

III. Results

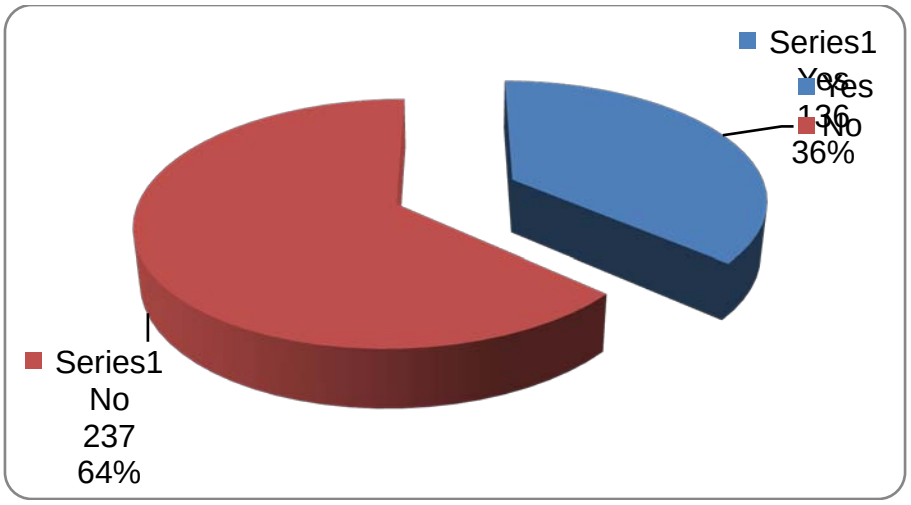
The mean age for menopause in our study was 46.21 years, median 45 years with standard deviation of 4.463. Range (39-60) years .The mean age of our population was 52 years range (42-90years)

In our study 7.2 % population had surgical menopause rest all attained natural menopause.

In our study 36.5 % population had a previous medical history which included 136 persons among the study group. Rest of the population had no significant past medical history.

Table 1 : Medical co- morbid conditions in the study population

		Count	Column N %
Medical history	Yes	136	36.5%
	No	237	63.5%
	Total	373	100.0%

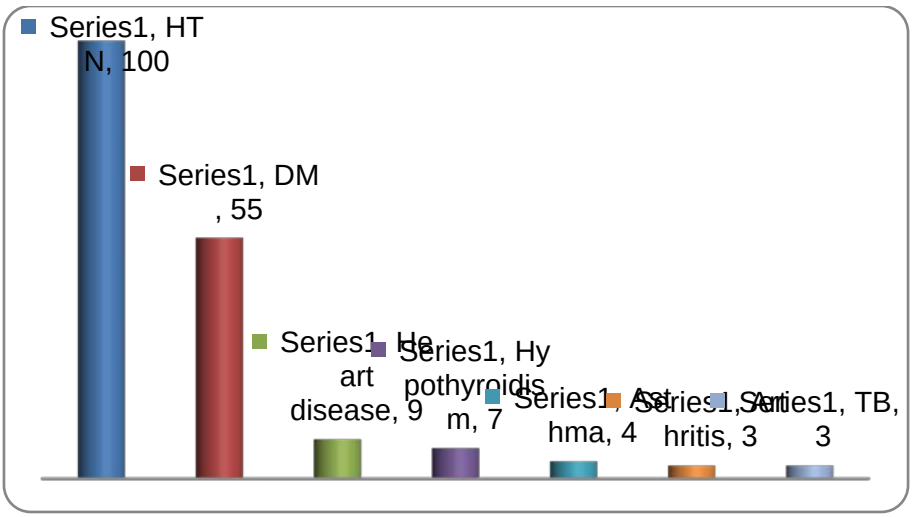


Graph 1: Medical co- morbid conditions in the study population

Table 2 : Co- morbid conditions associated with the study population

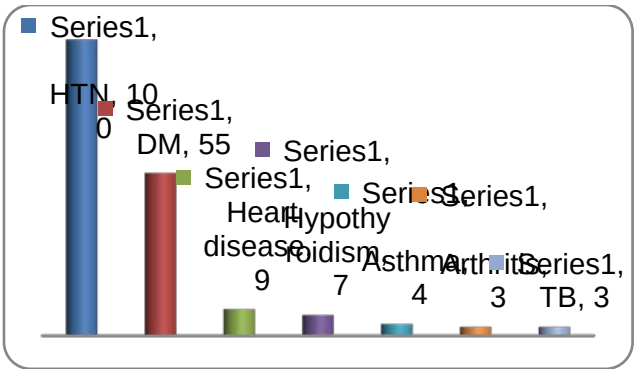
	Count	Column N%
HTN	100	73.53%
DM	55	40.44%
Heart disease	9	6.62%
Hypothyroidism	7	5.15%
Asthma	4	2.94%
Arthritis	3	2.21%
TB	3	2.21%

Percentages exceed 100% as more than one disease was present among study subjects.



Graph 2 : Co- morbid conditions associated with the study population

In the study maximum co-morbidity that was seen in population was hypertension (73.53%) followed by diabetes mellitus (40.44%) and least was seen to be arthritis (2.21%) and tuberculosis (2.21%).



Total 259 women experienced 383 vasomotor symptoms.51.4% had hot flushes and 96.5% had night sweats.

Table 3 : Percentage of population having vasomotor symptoms

		Responses	Percent of Cases
Vasomotor[a]	Hot flushes	133	51.4%
	Night sweat	250	96.5%
Total		383	147.9%

Percentages may exceed 100%

Total 291 women experienced 444 psychological symptoms.45.7% had sleep disturbances, 48.5% had lethargy and 58.4% had irritability.

Table 4 : Percentage of population having psychological symptoms

		Responses	Percent of Cases
Psychological	Sleep disturbances	133	45.7%
	Lethargy	141	48.5%
	Irritability	170	58.4%
Total		444	152.6%

Percentages may exceed 100%

Table 5 : Population having more or less than 3 symptoms

		Count	Column N %
More than three symptoms	>3 symptoms	194	52.0%
	<=3 symptoms	179	48.0%
	Total	373	100.0%

Total 365 women experienced 1460 all symptoms.

In our study 36.5 % population had a previous medical history which included 136 persons among the study group. Rest of the population had no significant past medical history.

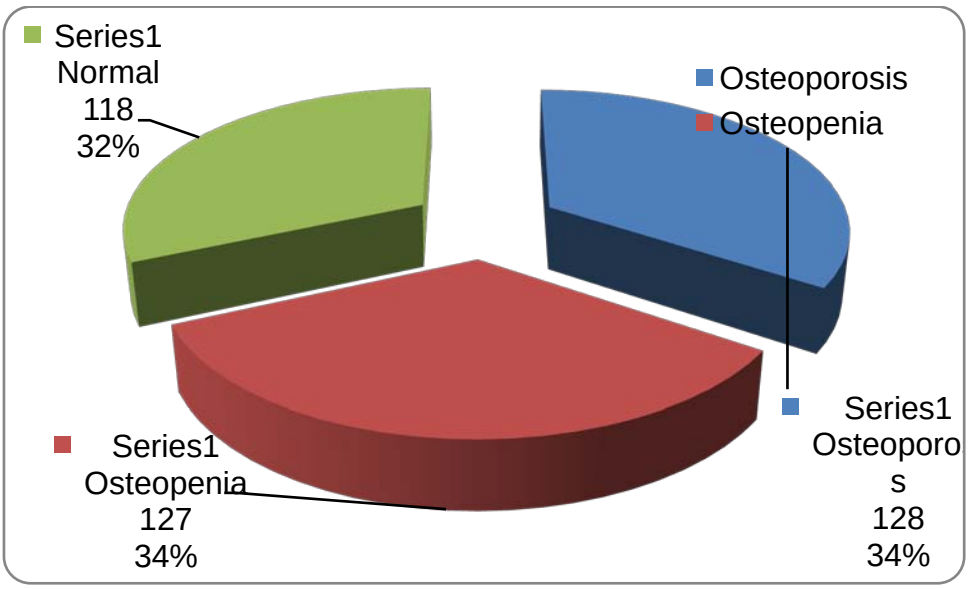
Table 6 : List of total number of affected population with symptoms

		Responses	Percent of Cases
All symptoms[a]	Hot flushes	133	36.4%
	Night sweat	250	68.5%
	Vulvovaginal	112	30.7%
	Stress incontinence	20	5.5%
	Burning micturition	45	12.3%
	Sleep disturbances	133	36.4%
	Lethargy	141	38.6%
	Irritability	170	46.6%
	Psychosexual	174	47.7%

	Weight gain	91	24.9%
	Muscle /joint pain	191	52.3%
Total		1460	400.0%

Table 7 : Report of Bone Mineral Density examination

		Count	Column N %
BMD	Osteoporosis	128	34.3%
	Osteopenia	127	34.0%
	Normal	118	31.6%
	Total	373	100.0%



Graph 3 : Report of Bone Mineral Density examination

Bone Mineral Density test showed that 34.3% had osteoporosis while 34.% had osteopenia rest all were normal

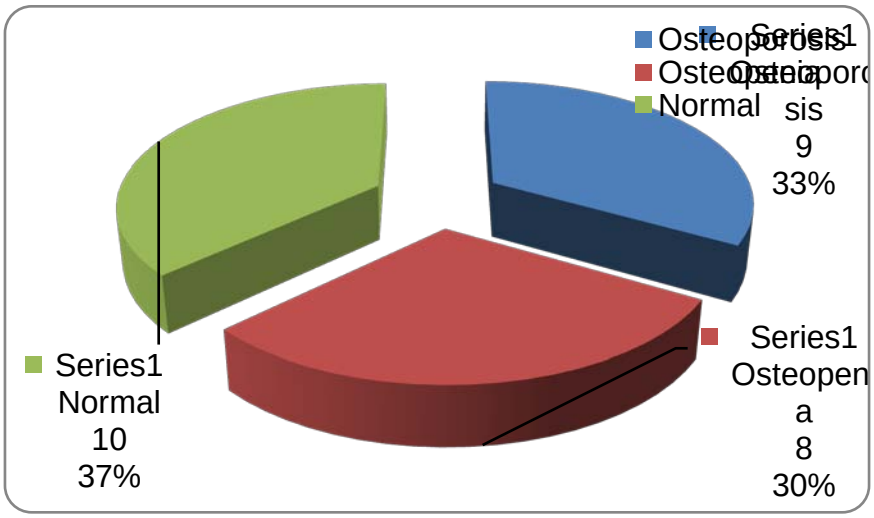
Table 8 : Result of mean and standard deviation for BMD

BMD	Mean	N	Std. Deviation
Osteoporosis	-2.8211	128	.22047
Osteopenia	-1.6451	127	.39867
Normal	.8191	118	.65153
Total	-1.2691	373	1.56976

This table shows that the mean for all osteoporotic patient BMD is -2.82 with standard deviation of 0.22 whereas for osteopenia the mean is -1.64 and standard deviation is 0.398 and for normal patients mean was 0.819 and standard deviation was 0.651.

Table 9 : Distribution of BMD among patients who underwent surgical menopause

		Count	Column N %
Post hysterectomy	osteoporosis	9	33.33%
	osteopenia	10	37.037%
	normal	8	29.62%



Graph 4 : Distribution of BMD among patients who underwent surgical menopause

Among the 27 patients who had surgical menopause 33.33% population had osteoporosis 37.03% had osteopenia and 29.62% were having normal BMD scores.

Table 10 : Correlation between age / BMD and age since menopause / BMD

		Age	Age Since Menopause
BMD	Correlation Coefficient	-.043	-.105*
	P value	.413	.043
	N	373	373

This table shows the correlation between BMD and age which is -0.43 which means age and BMD are inversely proportional coefficients .Similar results are seen between BMD and age since menopause which is -.0105 which means they are inversely proportional coefficients. This is not statistically significant as p value is 0.413

Table 11 : Correlation between BMD and surgical menopause

Ranks

	Surgical menopause	N	Mean Rank	Sum of Ranks
BMD	Yes	27	203.76	5501.50
	No	346	185.69	64249.50

This table is a correlation between surgical menopause and BMD where 27 subjects in the study group underwent surgical menopause, rest all had natural menopause. Among the 27 subjects who underwent surgical menopause 10 had osteopenia 9 had osteoporosis and 8 were normal. When this data was analyzed using Mann Whitney test, it was found that it is statistically not significant as p value is 0.401.

Table 12 : Correlation between BMD and lifestyle

		LIFESTYLE			
		Active		Sedentary	
		Count	Column N %	Count	Column N %
BMD	Osteoporosis	94	34.6%	34	33.7%
	Osteopenia	97	35.7%	30	29.7%
	Normal	81	29.8%	37	36.6%
	Total	272	100.0%	101	100.0%

This is a correlation between BMD and lifestyle. Among the 272 patients who had active lifestyle 34.6% hsd osteoporosis and 35.7% had osteopenia while among the 101 patients who had sedentary lifestyle 33.7% had osteoporosis and 29.7% had osteopenia. When this data was entered and analysed by Chi Square test is was found to be not significant.

Table 13 : Correlation between BMD and symptoms of muscle and joint pain

		Muscle /joint pain			
		Absent		Present	
		Count	Column N %	Count	Column N %
BMD	Osteoporosis	38	20.9%	90	47.1%
	Osteopenia	63	34.6%	64	33.5%
	Normal	81	44.5%	37	19.4%
	Total	182	100.0%	191	100.0%

This table is a correlation between symptoms of muscle and joint pain and BMD. In our study group 90 patients who had muscle and joint pain were showed to have osteoporosis and 64 patients had osteopenia. On analysis of this data using Man Whitney test it was found that this was a statistically significant correlation as p value is 0.001

IV. Discussion

The mean age at menopause observed in our study was 46.21 years. A wide range in mean age at menopause in Indian women from 40.32 to 48.84yrs [6-15] and in developed countries from 48.0 to 51 yrs [12-15.] have been suggested in the past.

According to our study symptoms such as hot flushes, night sweats, vulvovaginal, psychosexual and muscle and joint pain were seen maximum in low socio economic group Chowta et al.,[16] showed that the vasomotor symptoms were more common (89%) in the lower socioeconomic group, Genitourinary and psychological symptoms were common in the middle socioeconomic group which were similar to our results. In agreement to our study results, the results of Kaulagekar[17] showed that the high-income group had reported more vasomotor symptoms (54 vs 49%). It also showed that the psychological symptoms were reported more (70%) among the low-income group than the high-income group (59%). This could be because of the several other stressors which were present in their living environment. The Study of Women's Health across the Nation (SWAN) results showed that most of the indicators of the low socioeconomic status, particularly the low educational level and the difficulty in paying for the basic necessities, were associated with a significantly increased reporting of almost all the postmenopausal symptoms. Vasomotor symptoms such as hot flushes occured in 36% of the population in our study group which were similar to studies conducted by Chowta et al in the year 2008 which had 42%. Urogenital symptoms such as stress incontinence were seen in as many as 5.4% of the study group .Comparable studies showed siginificantly higher population affected by similar symptoms. Psychological symptoms such as sleep disturbances were seen in 35.7% of the study population comparable to studies conducted by Chowta et al. Lethargy as a symptom was seen in 37.8% of our study population. Other studies showed siginificantly higher population affected by this symptom. Muscle and joint pain occurred in 51.2% of the study populatation which were similar to results from other studies such as Chowta et al (48%).

Studies conducted by Siris ES[18] in the year 2001 showed that the risk for fracture increased as time since menopause increased. Relative risk for time since menopause for 10–19 years was 1.18 (1.01–1.38), 20–29 years was 1.31 (1.12–1.54) and 30 years was 1.51 (1.26–1.81)[98]In our study as well relative risk for fractures increases as age since menopause increases. This is because there is a inverse correlation between BMD and since menopause.

Lastly studies conducted by Tuppurainen M et al in the year 1995 showed that relative risk for fracture after Oophorectomy was 3.64 (1.01–13.04)[19] In our population 27 patients underwent surgical menopause with oopherectomy. Among them 33% had osteoporosis and 37% had osteopenia. Therefore there is an increased risk for fractures among patients who underwent oopherectomy.

V. Conclusion

We found that the majority of the middle aged women in our study viewed the menopausal transition as a natural process, the nature of which is affected by both hormonal changes and by ageing. Each woman seems to experience a set of psychological and physical symptoms that are in some sense unique to her experience. Hypertension was the most common co-morbid condition seen along with menopause

Most common symptom associated with menopausal transition was night sweats followed by muscle and joint pain, psychosexual symptoms and irritability. Bone mineral density test concluded 34.3% of the population were suffering from osteoporosis while 34% were suffering from osteopenia. There is a statistical correlation between BMD and lifestyle pattern. BMD is significantly reduced in the population suffering from symptoms muscle and joint pain. BMD is inversely proportional to the age since menopause. There is an increased risk for fractures among patients who underwent oopherectomy. There is an inverse correlation between BMD and since menopause.

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Management of Bleeding Occuring on the Last Three Months before Delivery at the University Hospital Center of Brazzaville

By Mbongo Jean Alfred, Haba Foromo, Aloumba Gilius Wilhem & Iloki Léon Hervé

Summary- Objective: to Identify différent problems encountered in the Management of bleeding the last trimester of pregnancy

Methods: This is a retrospective descriptive study over a period of 12 months.

This study involved pregnant women with a minimum term of 28 weeks of gestation, with an antepartum haemorrhage of pregnancy.

Those with incomplete data, and none obstetric genital bleeding were not included.

Results: The frequency was 1.27% of deliveries of 98 patients, 3% had a poor condition upon admission; they consulted for bleeding (57.1%) and / or to the lumbosacral pelvic pain (33.7%); the birthing work was initiated in 47.9% of cases, 63.3% of fetuses were alive at admission.

Bleeding causes were placenta previa (56.1%); the retro-placental hematoma (37.5%), uterine rupture (5.1%), and undetermined causes 3%.

Keywords: bleeding, pregnancy, brazzaville, congo.

GJMR-E Classification : NLMC Code: WJ 140

Strictly as per the compliance and regulations of:

Management of Bleeding Occuring on the Last Three Months before Delivery at the University Hospital Center of Brazzaville

Prise En Charge Des Hémorragies Du Troisième Trimestre De La Grossesse Au Centre Hospitalier Et Universitaire De Brazzaville

Mbongo Jean Alfred [α], Haba Foromo [σ], Aloumba Gilius Wilhem [ρ] & Iloki Léon Hervé [ω]

Résumé- Objectif: Cerner la Prise en charge des hémorragies du 3e trimestre de la grossesse

Méthodes: Il s'est agit d'une étude descriptive rétrospective, sur une période de 12 mois.

Cette étude a concerné les femmes enceintes avec un terme minimal de 28 semaines d'aménorrhée, présentant une hémorragie du troisième trimestre de la grossesse.

Celles ayant les dossiers incomplets, et les cas hémorragies génitales non obstétricales n'ont pas été incluses.

Résultats: La fréquence des hémorragies du 3e trimestre a été de 1,27 % des accouchements

Sur 98 patientes, 3% avaient un mauvais état général à l'admission ; elles consultaient pour des hémorragies (57,1%) et/ ou pour des douleurs lombo-pelviennes (33,7%) ; le travail d'accouchement était amorcé chez 47,9% des cas, 63, 3% des fœtus étaient vivants à l'admission.

Les causes hémorragies ont été le placenta prævia (56,1%) ; l'hématome retro-placentaire (37,5%), la rupture utérine (5,1%), et les causes indéterminées 3%.

La transfusion sanguine a été effectuée chez 16,3% des patientes ; 80,6% ont bénéficié de la césarienne ; l'hystérorraphie a été pratiquée chez 5,1% des patientes.

Le pronostic maternel a été satisfaisant chez 83,6% des cas ; malgré une anémie résiduelle dans 73,4 % des cas, et 11 % de complications infectieuses. Le pronostic fœtal a été sombre : La prématurité a concerné 39,8% des nouveau-nés, avec 45,9% de faibles poids de naissance et 28,7% de mort-nés frais.

Conclusion: La prise en charge des hémorragies du 3e trimestre est encore mitigée : si le pronostic maternel parait satisfaisant, le pronostic fœtal est encore très sombre.

Mots clés: Hémorragies, grossesse, Brazzaville-Congo.

Summary- Objective: to Identify différent problems encountered in the Management of bleeding the last trimester of pregnancy

Methods: This is a retrospective descriptive study over a period of 12 months.

This study involved pregnant women with a minimum term of 28 weeks of gestation, with an antepartum haemorrhage of pregnancy.

Those with incomplete data, and none obstetric genital bleeding were not included.

Results: The frequency was 1.27% of deliveries of 98 patients, 3% had a poor condition upon admission; they consulted for bleeding (57.1%) and / or to the lumbosacral pelvic pain (33.7%); the birthing work was initiated in 47.9% of cases, 63.3% of fetuses were alive at admission.

Bleeding causes were placenta previa (56.1%); the retro-placental hematoma (37.5%), uterine rupture (5.1%), and undetermined causes 3%.

Blood transfusion was performed in 16.3% of patients; 80.6% received caesarean section; the hystérorraphie was performed in 5.1% of patients.

Maternal prognosis was satisfactory in 83.6% of cases; despite a residual anemia in 73.4% of cases and 11% of infectious complications. The fetal prognosis was grim: Prematurity has affected 39.8% of newborns, with 45.9% of low birth weight and 28.7% of stillbirths costs.

Conclusion: The Management of the third trimester bleeding is still mixed, if maternal prognosis seems satisfactory, fetal prognosis is uncertain.

Keywords: bleeding, pregnancy, brazzaville, congo.

I. Introduction

L'hémorragie du troisième trimestre ou hémorragies anténatales, sont des saignements vaginaux qui surviennent à partir de la 28eme semaine d'aménorrhée [1].Ces hémorragies peuvent être causées par une implantation anormale du placenta, telle que le placenta prævia, le décollement prématuré du placenta normalement inséré et aussi la rupture utérine [2].Quelque soit leurs étiologies, les hémorragies anténatales peuvent avoir des conséquences déplorables. En effet, pour Mercier et al. [2], les hémorragies anténatales, avec une incidence basse (environ 5 à6%), constituent une cause importante de la mortalité maternelle et périnatale. Selon Fumulu au Cameroun, le placenta prævia, l'abruptio placentae et la rupture utérine représentent 40,9 % des causes des causes de décès maternel liés à l'hémorragie [3].

Au Congo Brazzaville, le risque de mourir au cours de la grossesse est élevé, car chaque année, environ une femme sur mille en âge de procréer risque de décédée du fait d'une grossesse, et l'hémorragie reste la cause dominante de décès de femmes [4]. Le placenta prævia reste une pathologie grave de la

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grossesse, parmi les éléments de l'amélioration du pronostic, est citée la pratique à temps de la césarienne dès que la maturité pulmonaire est acquise [5]. L'hématome retro-placentaire étant une complication de l'hypertension artérielle ; au Congo-Brazzaville, particulièrement, le pronostic materno-fœtal de l'hypertension artérielle associée à la grossesse demeure mauvais [6] .En Plus, le pronostic des prématurés à Brazzaville n'est meilleur qu'à partir de 33 semaines d'aménorrhées, avant ce terme la prudence est de mise surtout en cas d'extraction par césarienne [7].

Parmi les causes identifiées pour la réduction de la mortalité maternelle à Brazzaville, la dotation des hôpitaux en matériel permettant de juguler les urgences est citée [4]. Ainsi, des efforts en été faits dans ce sens. Nous avons voulu cerner les problèmes de prise en charge des hémorragies du 3e trimestre.

II. Patientes et Méthodes

Il s'agissait d'une étude descriptive rétrospective, sur une période de 12 mois, allant du janvier 2015 au 31 décembre 2015, qui s'est déroulée dans le service de Gynécologie Obstétrique du CHU de Brazzaville.

Nous avons pris en compte les dossiers des patientes de la période allant de 1 janvier au 31 décembre soit un total de 98 cas.

Nous avons inclus les femmes enceintes avec un terme minimal de 28 semaines d'aménorrhée, présentant une hémorragie du troisième trimestre de la grossesse.

Les dossiers incomplets, et les dossiers des femmes ayant des hémorragies génitales non obstétricales n'ont pas été retenus.

Les variables analysées ont été l'état clinique des patientes à l'admission, les causes des hémorragies du 3e trimestre, les modalités de prise en charge, les complications maternelles, caractéristiques des nouveau-nés à la naissance.

Pour apprécier l'état général des patientes, nous avons utilisé la classification de l'American Society of Anesthesiologist (ASA).

ASA I : Patiente en bonne santé, sans autre affection que celle motivant l'intervention.

ASA II : Perturbation modérée d'une grande fonction.

ASA III : Perturbation sévère d'une grande fonction

Les données ont été analysées à l'aide du logiciel Epi info version 3.5.4.

III. Résultats

Sur 7705 accouchements, nous avons noté 98 cas d'hémorragies du 3e trimestre d'origine obstétricale soit une fréquence de 1,27 %.

L'analyse du tableau I fait noter que la plupart des patientes avaient un bon état général à l'admission ; elles consultaient pour des hémorragies et /ou des douleurs lombo-pelviennes ; le travail d'accouchement souvent amorcé et les fœtus dans la majorité des cas étaient vivants.

Les causes de ces hémorragies ont été le placenta prævia 55/98 (56,1%) ; l'hématome retro-placentaire 35/98 (37,5%), la rupture utérine 5/98 (5,1%), et les causes indéterminées (hémorragie après maturation cervicale au misopristol) 3/98 (3%).

La prise en charge médicale a été souvent indispensable quelque soit l'étiologie, pour le rétablissement et le maintient de la volémie. Dans la majorité des cas nous avons pratiqué une oxygénation, la perfusion de macromolécules, la transfusion sanguine, puis le traitement obstétrical (tableau II).

Sur le tableau III, nous avons résumé l'évolution des hémorragies du 3e trimestre.la satisfaction a été souvent observée, mais souvent l'anémie persistait et quelque rares cas d'infections ont été notés.

Plus du tiers des nouveau-nés étaient prématurés, et souvent avec de faibles poids de naissance. Après réanimation, l'amélioration du score d'Apgar était nette. Le nombre de mort-nés frais a été considérable (tableau IV).

IV. Discussion

Sur 7705 accouchements, la fréquence des hémorragies du troisième au CHU de Brazzaville a été de 1,27 %. Elle est en dessous de celle rapporté par Issa Keita [8] à Bamako en 2008, de 2,7% pour 3028 accouchements ; et Baba Dior Diop [9] à Dakar, avec un taux plus important de 5,1 %.

L'état général à l'admission était mauvais chez 3% de nos patientes, des taux similaires sont rapportés par d'autres auteurs [8, 10].Les patientes venaient d'elles mêmes, ou étaient référées pour l'hémorragie génitale, et/ou des douleurs lombo-pelviennes pour celles qui étaient en travail avec ou sans l'hématome retro placentaire. D'autres auteurs retrouvent comme motif d'évacuation sanitaire l'hémorragie [11].Le placenta prævia venait en tète de étiologies des hémorragies du 3e trimestre avec 56 ,1%, suivi par l'hématome retro-placentaire (37,5%), la rupture utérine (5,1%) puis les causes non indéterminées (3%).D'autres auteurs [8,10],rapportent les mêmes étiologies, mais avec une primauté de l'hématome retro placentaire et des taux élevés de rupture utérine : Soit 13,3% de ruptures utérines pour Issa Keita et 9,5% pour Moussa Fane, dans la même ville et pendant la même année 2008. Pour ce dernier, la couverture sanitaire insuffisante est la cause, tandis que Dolo et al [8] incriminent le niveau socio-économique des pays. Dans

la littérature [12], l'hémorragie de Benkiser et l'hématome décidual marginal sont aussi retenues comme cause des hémorragies du 3e trimestre. Sépou et al [13], dans une étude qui concernait les hémorragies du 3e trimestre de la grossesse jusqu'à la période de la délivrance, constatent que les hémorragies en période de la délivrance sont plus fréquentes avec 79,2%de cas, et elles sont dominées par les lésions des parties molles, qui sont la conséquence de mauvaise pratique obstétricale.

Nous avons pratiqué 80,6% de césariennes, contre 14,3 %d'accouchements par voie basse.une étude ultérieure dans le même service [5], ayant concerné le placenta prævia hémorragique, donne un résultat similaire. Moussa Fane [10], rapporte une étude ayant concerné 55,4% de césarienne et jusqu'à 35,1% de préférence à l'accouchement par voie basse, en le justifiant par les principales causes des hémorragies qui sont toutes pourvoyeuses de césariennes.

En raison du type lésion, souvent linéaire et d'installation récente, afin de préserver la procréation de nos patientes, nous avons privilégié le traitement conservateur de la rupture utérine par Hystérorraphie. A Madagascar [14], sur une étude ayant concerné la prévalence des ruptures utérines, le traitement conservateur prédomine sur le traitement radical.

Le pronostic maternel été bon dans l'ensemble, en effet, avec 83,6% d'évolution favorable, en dépit de 73,4 % de cas d'anémie résiduelle et de 11,1 % de complications infectieuses, aucun décès maternel n'a été observé. Cela peut être du à la référence rapide des patientes des centre périphériques qui maitrisent les signes de danger, mais aussi à une bonne organisation dans le centre de référence. En effet, le CHU de Brazzaville est doté de Kit d'urgence et la présence d'une équipe de garde pluridisciplinaire (Gynécologue obstétricien, anesthésiste réanimateur, Pédiatre), concourent à cette performance. Pour certains auteurs [15], les gestantes supportent De façon surprenante, les hémorragies importantes .Pourtant dans la littérature, plusieurs études ayant concernées les étiologies des hémorragies du 3e trimestre rapportent un pronostic maternel sombre [16, 17, 18], en contradiction avec l'étude réalisée antérieurement dans notre service [5]. Pour certains auteurs [16,18], l'amélioration du pronostic materno-fœtal passe par un meilleur niveau socio-économique et sanitaire une bonne prise en charge des patientes. Concernant le pronostic fœtal, dans notre travail, avec 39,8% de prématurité, 45,9% de faible poids de naissance, et 28,7% de mort-nés frais le Pronostic fœtal a été considéré comme mauvais. L'amélioration de la prise en charge dans le service parait plus bénéfique pour les patientes que pour leur progéniture. En effet, les étiologies des hémorragies du 3e trimestre, souvent de manifestations cliniques imprévisibles, et entrainant une hypoxie fœtale grave et brutale sont souvent non maitrisables. En effet, selon Colan et al [19], le taux décès fœtal en cas d'hématome retro-placentaire est fonction du degré du décollement du placenta qui progresse avec l'augmentation de l'hématome, ainsi, l'HRP est très féticide. En plus de la mortalité fœtale engendrée par les hémorragies, les nouveau-nés prématurés ou de petits poids de naissance sont sujets à une morbidité importante [10].

V. Conclusion

Malgré l'impression de l'amélioration du pronostic maternelle, la prise en charge des hémorragies du 3e trimestre, n'est pas encore parfaite au CHU de Brazzaville. L'amélioration du pronostic fœtal, passera par un diagnostic précoce, la rapidité et l'efficacité des soins, une meilleure disponibilité des produits sanguins et surtout la maitrise des soins obstétricaux et néonataux d'urgence.

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Tableau I : Etat clinique à l'entrée

	Effectif N=98	%
Etat général		
ASA I	62	63,2
ASA II	33	3 3,6
ASA III	3	3,0
Motif de consultation :		
Hémorragie génitale	56	57,1
Douleurs lombo-pelviennes et hémorragie génitale	33	33,7
Parturientes	47	47,9
Gestantes	19	19,4
BDCF Présents	62	63,3
BDCF Absents	36	36,7

Tableau II : Prise en charge des hémorragies du 3e trimestre

	Effectif N=98	%
Accouchement par voie basse	14	14,3
Césarienne	79	80,6
Hystérorraphie	5	5,1
Hystérectomie d'hémostase	-	
Transfusion sanguine	16	16,3

Tableau III : Pronostic maternel

	Effectif	%
Evolution satisfaisante	82	83,6
Morbidité		
Hémorragie de la délivrance	1	1,0
Choc hypovolémique	2	2,0
Suppuration pariétale	2	2,0
Endométrite	5	5,1
Endométrite+suppuration pariétale	4	4,0
Anémie	72	73,4

Tableau IV : Pronostic fœtal

	Effectif N=98	%
Enfant vivant		
Prématuré	39	39,8
Né à terme	31	31,6
Mort né frais	28	28,7
Réanimé	23	23,5
Non réanimé	47	47,9
Apgar		
à 1 minute		
de 1 à 4	5	5,1
de 5 à 6	16	16,3
de 7 à 10	77	78,5
à 5 minute		
de 1à 4	1	1,0
de 5 à 6	3	3,0
de 7 à 10	94	95,9
à 10 minute		
de 1 à 4	1	1,0
de 5 à 6	2	2,0
de 7 à 10	95	96,9
Poids		
1000 à 2500 g	45	45,9
2600 à 3500 g	34	34,7
<3600 g	19	19,4
Transfert en néonatologie	6	6,1
Mort intra-partum	28	28,5

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Management of Chronic Pelvic Pain in Patients with Endometriosis

By Dr. Jose Negron Rodriguez

Abstract- Endometriosis, a disease of unknown etiology, remains a cause of significant morbidity in reproductive age women resulting in chronic pelvic pain. Several mechanisms could explain the relationship between endometriosis and pelvic pain, and are potential targets of therapies. Endometriosis-associated pain can be treated with medical therapies or surgery, both conservative and radical. The medical therapies induce a hormonal steady state that results in an environment not conducive for endometriosis development. Surgical therapies for endometriosis-associated pain include conservative treatments such as removal of endometriotic implants, nodules, and adhesions with restoration of normal pelvic anatomy. Radical surgery involves removal not only the uterus with or without of the ovaries in patients who have completed childbearing, but also all residual pelvic lesions.

Keywords: endometriosis, chronic pelvic pain, deep infiltrating endometriosis, medical therapies, surgical treatment.

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Management of Chronic Pelvic Pain in Patients with Endometriosis

Manejo Del Dolor Pelvico Cronico En Pacientes Con Endometriosis

Dr. Jose Negron Rodriguez

Resumen- Endometriosis, una enfermedad de etiología desconocida, sigue siendo una causa de morbilidad significativa en mujeres en edad reproductiva dando como resultado dolor pélvico crónico. Varios mecanismos podrían explicar la relación entre endometriosis y dolor pélvico y son blancos potenciales para los tratamientos. El dolor asociado a endometriosis puede tratarse con medicamentos o cirugía, tanto en forma conservadora como radical. Los tratamientos médicos inducen a un estado de equilibrio hormonal, no propicio para el desarrollo de la endometriosis. Los tratamientos quirúrgicos para el dolor asociado a endometriosis incluyen formas conservadoras, tales como, la remoción de los implantes endometriósicos, nódulos y adherencias, con el restablecimiento de la anatomía normal de la pelvis. La cirugía radical, involucra la remoción no solo del útero con o sin los ovarios en mujeres que han completado su paridad, sino también todas las lesiones endometriósicas residuales.

Palabras Claves: endometriosis, dolor pélvico crónico, endometriosis infiltrativa profunda, terapia médica, tratamiento quirúrgico.

Abstract- Endometriosis, a disease of unknown etiology, remains a cause of significant morbidity in reproductive age women resulting in chronic pelvic pain. Several mechanisms could explain the relationship between endometriosis and pelvic pain, and are potential targets of therapies. Endometriosis-associated pain can be treated with medical therapies or surgery, both conservative and radical. The medical therapies induce a hormonal steady state that results in an environment not conducive for endometriosis development. Surgical therapies for endometriosis-associated pain include conservative treatments such as removal of endometriotic implants, nodules, and adhesions with restoration of normal pelvic anatomy. Radical surgery involves removal not only the uterus with or without of the ovaries in patients who have completed childbearing, but also all residual pelvic lesions.

Keywords: endometriosis, chronic pelvic pain, deep infiltrating endometriosis, medical therapies, surgical treatment.

I. Introduccion

Se estima que 1 de cada 10 mujeres en edad reproductiva sufre de endometriosis[1,2]. Endometriosis es una enfermedad inadecuadamente diagnosticada y tratada, varios estudios han mostrado que toma entre siete y doce años en ser diagnosticada (especialmente en adolescentes), desde el tiempo de inicio de los síntomas hasta el diagnóstico laparoscópico[3–6]. Esta demora en el diagnóstico puede contribuir al deterioro de la calidad de vida y tener implicancias negativas sobre la fertilidad.

Es conocida la asociación entre endometriosis y dolor, y uno deberá siempre tener en mente a la endometriosis como parte de una exhaustiva evaluación en el diagnóstico diferencial del dolor pélvico. Aunque es conocida la asociación entre dolor y endometriosis, la exacta relación causal es poco clara. De hecho, gran parte de la literatura relacionada con endometriosis, utiliza el sistema de clasificación basado en la extensión de la enfermedad y que no correlaciona bien con la severidad de los síntomas (sistema de clasificación r-ASRM)[7]. Como ejemplo, endometriosis infiltrativa profunda, no forma parte de ese sistema, ni siquiera es mencionada, sin embargo hay fuerte evidencia que la localización de la endometriosis profunda tiene alguna correlación con la localización del dolor[8], mientras la localización de la endometriosis peritoneal superficial no la tiene[9].

II. Endometriosis y Dolor

Endometriosis es una condición inusual debido al potencial de una variedad de diferentes mecanismos para generar dolor. Estos incluyen compresión/infiltración directa de nervios por las lesiones, dolor inflamatorio debido a un ambiente inflamatorio incrementado en la pelvis y dolor neuropático secundario al daño de los nervios pélvicos por la enfermedad o por la cirugía, o también de la neoinervación que infiltra directamente las lesiones.

La respuesta nociceptiva está relacionada con un estímulo nocivo que alerta al organismo impidiendo el daño tisular. En las dos últimas décadas empezaron a publicarse una serie de trabajos que trataban de explicar la relación de endometriosis y dolor bajo una visión nociceptiva, encontrándose que, la densidad de las fibras nerviosas en las lesiones peritoneales de mujeres con endometriosis y dolor es seis veces mayor que en el peritoneo de mujeres sin dolor y sin endometriosis[10,11]. Además el 74% de las lesiones endometriósicas tiene fibras nerviosas amielínicas (Tipo

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C) en contacto directo con ellas[12]. Se ha documentado que existe invasión neural y endoneural de fibras mielínicas (Tipo Aδ) en nodules endometriósicos del septum recto vaginal, también que el dolor correlaciona con la cantidad de encapsulación nerviosa en lesiones fibróticas y endometriósicas y el grado de invasión neural y perineural, así mismo se conoce que las fibras Aδ transmiten el primer dolor y el dolor somático y su presencia en los nódulos recto vaginales podría explicar la marcada sensibilidad que se observa con la palpación de estas lesiones profundas[13]. La remoción quirúrgica de estas lesiones produce una significativa mejoría en la percepción clínica del dolor, aportando esto una fuerte evidencia que el dolor nociceptivo es un importante mecanismo en el dolor pélvico asociado a endometriosis[14].

Cuando existe daño tisular, se desencadena una respuesta inflamatoria, inflamación es uno de los mayores mecanismos causales de dolor visceral, hay abundante evidencia que endometriosis condiciona un proceso inflamatorio pélvico, esto es, genera una respuesta inflamatoria significativa, consistente con la hipótesis de que mucho del dolor asociado a endometriosis es de origen inflamatorio.

A diferencia de los mecanismos anteriores, el componente neuropático es producido por daño o disfunción de las neuronas en el sistema nervioso periférico o en el sistema nervioso central, este es independiente del evento desencadenante y frecuentemente conduce a un estado de dolor crónico. Bajo estas circunstancias el cerebro está sensibilizado para sentir dolor aun cuando la fuente del dolor ha sido eliminada o tratada.

De particular interés es un estudio elegantemente diseñado por As-Sanie y col.[15], que investigaron 23 mujeres con dolor pélvico crónico con y sin endometriosis diagnosticadas por laparoscopía, en adición con mujeres en quienes se encontró endometriosis pero que no sufrían de dolor pélvico crónico y compararon cada grupo con mujeres sanas libres de dolor. Como se esperaba las mujeres con dolor pélvico crónico con o sin endometriosis tenían una reducción del volumen del tálamo y además hubo también una disminución del volumen del cíngulo, ínsula y putámen en mujeres con dolor pelvic crónico asociado a endometriosis. Sin embargo el hallazgo más interesante fue que mujeres con endometriosis pero sin dolor pélvico crónico tenían un incremento en el volumen de la zona gris periacueductal. Además el volumen de la zona gris periacueductal correlaciona con la cantidad de presión requerida para inducir dolor. Los autores sugieren que esto podría ser debido al rol de la region periacueductal en la disminución de la inhibición del dolor y esto explicaría porqué algunas mujeres con endometriosis tienen poco o ningún dolor a pesar de tener un gran compromiso lesional por la enfermedad.

III. Alternativas de Tratamiento

Endometriosis al ser una enfermedad multifactorial, combina un sinnúmero de components patogenéticos que tratan de explicarla en su totalidad sin llegar a tener la comprensión plena de su etiología, por lo tanto, las alternativas de tratamiento para la enfermedad tienen una base empírica.

a) Tratamiento Medico

La supresión hormonal es frecuentemente recomendada como primera línea de tratamiento para el dolor pélvico que pensamos que sea debido a endometriosis. La supresión hormonal puede controlar los síntomas de dolor pélvico y dismenorrea, esta terapia empírica, que incluye anticonceptivos orales (combinados o solo gestágenos) y análogos de hormona liberadora (a-GnRH), frecuentemente prescritos para el alivio de la sintomatología, son también de utilidad como una forma de ensayo diagnóstico y para disminuir progresión de la enfermedad. Sin embargo una respuesta empírica positiva (mejoría de los síntomas) con estos medicamentos no es diagnóstico de la presencia de endometriosis, a diferencia de si hay una respuesta negativa al tratamiento (no mejoría de los síntomas), deberá inducir a la búsqueda de la enfermedad endometriósica[16].

En la práctica clínica existen diferentes fármacos que son administrados para el alivio del dolor pelvic crónico asociado a endometriosis:

- *AINES (Anti-inflamatorios No Esteroideos):* Son comúnmente utilizados como primera línea de tratamiento, es poca la evidencia de su efectividad y si uno en particular es mejor que otro[17]

- *ACOs (Anticonceptivos orales):* Su uso se basa en la mejoría clínica de la enfermedad endometriósica con el embarazo, inhiben la producción gonadal de estrógeno vía un mecanismo de feedback y la supresión de la actividad ovárica conduce a la reducción de la secreción de prostaglandinas mediada por estrógeno. El uso continuo del medicamento se asocia con una mayor disminución del dolor asociado a la enfermedad18. Los efectos colaterales es el factor limitante del tratamiento.

- *Progestágenos:* Usados hace más de 30 años para el tratamiento de la endometriosis, gracias a su mecanismo central y periférico, transformando el endometrio, primero secretorio, luego decidual para finalizar atrófico, creando un estado de pseudo embarazo. Todas las formas de progestágenos son efectivas, incluyendo los sistemas intrauterinos de liberación prolongada (LNG-DIU), en particular del alivio sintomático en casos de endometriosis del septum recto vaginal, con disminución del tamaño

de los implantes y prevención de la recurrencia luego del tratamiento quirúrgico.[19–21]

- *Análogos de GnRH:* Considerados como la segunda línea de tratamiento, se administran si hay falla con ACOs o Progestágenos, o si los efectos colaterales no son tolerados. Producen un buen alivio del dolor, pero sus limitaciones son la alta tasa de recurrencia y los efectos colaterales[22].
- *Antagonistas de GnRH:* Se necesitan más ensayos clínicos para ser introducidos en la práctica clínica.
- *Otros:* Inhibidores de la Aromatasa, Moduladores selctivos de los receptores de estrógenos (SERMs), Moduladores selectivos de los receptores de progesterona (SPRMs), Inmunomoduladores, Agentes antiangiogénicos, etc, necesitan más ensayos clínicos.

Especial interés ha motivado la reciente introducción en la práctica clínica de un nuevo progestágeno, derivado de la nortestosterona, Dienogest, que carece de actividad androgénica pero que si tiene actividad antiandrogénica y los estudios de Fase II llevados a cabo en Europa y Japón demostraron su utilidad en el tratamiento del dolor asociado a endometriosis.

Dos publicaciones recientes, una, de Luisi y col.23, que es un estudio prospectivo observacional multicéntrico realizado en 13 universidades de Italia y cuyo objetivo es evaluar la eficacia del Dienogest en la mejora de la calidad de vida en 142 mujeres con endometriosis durante 90 días, muestra como resultados la disminución progresiva del dolor y mejoría en la calidad de vida durante el tratamiento (evaluados a través de los parámetros VAS –escala visual análoga, Indice mental e Indice físico). Los efectos adversos reportados son: cefalea (30.8%), sangrado vaginal (29.4%), depresión (26.8%), sensibilidad mamaria (23.8%) y acné (2%). Concluyen que el Dienogest es un medicamento bien tolerado y efectivo tratamiento que mejora la calidad de vida en mujeres con endometriosis.

La otra publicación, es un estudio prospectivo de cohortes, realizado por Yela y col.24, en la Universidad de Campinas (Brazil), donde 16 mujeres con endometriosis infiltrativa profunda y que no tenían mejoría con el tratamiento con otras progestinas, fueron tratadas con Dienogest. Se evaluaron scores de dolor, síntomas, calidad de vida, sexualidad y extensión de lesiones, seis meses antes y seis meses después del tratamiento. Como resultados obtuvieron una significativa disminución de la dismenorrea, dolor pelvic acíclico, dispareunia y disquecia. No hubo mayor cambio en el índice de calidad de vida y el índice la función sexual. Es de interés notar que las lesiones intestinales que medían 3,4 ± 4,2 cm disminuyeron a 1,6 ± 1,8 cm, pero esta reducción no fue estadísticamente significativa. Los efectos colaterales más frecuentes fueron cefalea y acné. Concluyen que Dienogest puede ser usado para el control clínico del dolor en mujeres con endometriosis infiltrativa profunda.

A juzgar por los resultados de las publicaciones, tenemos un nuevo fármaco con un perfil clinic adecuado para el manejo del dolor pélvico crónico asociado a endometriosis dentro de nuestro arsenal terapéutico.

b) Tratamiento Quirugico

El tratamiento quirúrgico básicamente está indicado cuando los síntomas asociados a la enfermedad endometriósica afectan la vida diaria y/o la calidad de vida de la paciente.

La finalidad del tratamiento quirúrgico es la óptima remoción y tratamiento de todas las lesiones visible y enfermedad profunda que potencialmente son las causales de dolor, restablecimiento de la anatomía, preservación la función y la prevención de adherencias.

La decisión de realizar un procedimiento quirúrgico implica una serie de aspectos que van desde la comprensión de la enfermedad, el tipo de enfermedad endometriósica, un exhaustivo examen físico, la utilización de imágenes y otros exámenes (cuando sea pertinente) para un planeamiento operatorio adecuado, el consentimiento informado, las técnicas a utilizar, complicaciones potenciales y recurrencia.

En las formas severas de la enfermedad endometriósica, como es la forma infiltrativa profunda, y que a la vez es la más sintomática, es de mucha importancia el examen recto vaginal, que nos permite evaluar la nodularidad o engrosamiento en la vagina, recto, septum recto vaginal, ligamentos útero sacros, torus uterinus, paracervix y parametrio. Sin embargo es insuficiente para el diagnóstico de la enfermedad profunda, 40% de los exámenes son reportados como normales y no permite evaluar profundidad lesional ni localización específica25. Es necesario tener el apoyo diagnóstico de las imágenes (Eco T-V, RMN). Las imágenes pueden ayudar para guiar el enfoque terapéutico, el asesoramiento de la paciente antes de la cirugía, la interconsulta con especialistas en cirugía compleja de la endometriosis, según sea el caso, el inconveniente de la eficacia en el diagnóstico con las técnicas de imágenes es completamente operador dependiente. Es importante recalcar las ventajas de uno y otro método, por ejemplo la ecografía transvaginal con preparación intestinal es más accesible, más rápida, más barata, repetible, examen dinámico y tiene menos contraindicaciones. En cambio la RMN, diagnostica mejor la endometriosis peritoneal superficial, infiltración del septum recto vaginal, ligamentos útero sacros, lesiones pequeñas de menos de 1 cm y visualiza mejor la cavidad abdominal, tiene el inconveniente de ser más cara.

¿Qué necesitan saber los cirujanos antes de tratar endometriosis profunda? Es importante, la comprensión de la enfermedad endometriósica, presencia del nódulo endometriósico, localización del nódulo (septum recto vaginal?, ligamento útero sacro?, recto?, sigmoides?), tamaño del nódulo (< de 3 cm o mayor), número de nódulos (> 2), profundidad e infiltración de la pared intestinal (serosa?, muscularis?, mucosa?), distancia de la lesión al margen anal, estenosis del lumen, compromise circunferencial[26].

Todos estos elementos que el cirujano debe tener y evaluar previamente, le permiten tomar la decision quirúrgica adecuada y la técnica operatoria que mejor se acomode a las necesidades de la paciente puesto que de ello dependerá el alivio de la sintomatología y la recurrencia de la enfermedad. Brouwer y Woods[27], en un artículo publicado sobre endometriosis colorectal, comparan las tasas de recurrencia en relación con el procedimiento quirúrgico realizado, encuentran que, para la técnica del "Shaving" es 22.2%, para "Resección discal" es 5.17% y "Resección segmentaria" es 2.19%.

Es sabido que la cirugía de la endometriosis profunda no está exenta de complicaciones y éstas a su vez tienden a disminuir con la experiencia del cirujano en el tratamiento de lesiones profundas. Esto va de la mano con el conocimiento profundo de la pelvis y su contenido, la patología de la enfermedad endometriósica, las diferentes técnicas operatorias, las complicaciones y como prevenirlas, se va acuñando el concepto de cirujano pélvico. En cuanto a los aspectos técnicos, contar con todos los elementos necesarios para una cirugía exitosa.

En el tratamiento quirúrgico de la endometriosis profunda es importante que el cirujano desarrolle una estrategia, la cual tiene aspectos generales y específicos.

La estrategia general implica:

- Adhesiolisis.
- Exposición (manipulador uterino, suspensión de órganos).
- Identificación de los uréteres: Cuando?, siempre, Donde?, en el borde superior de la pelvis, Disección?, cuando hay compromiso de los ligamentos útero sacros.
- Disección de los espacios para rectales.
- Reevaluación de las lesiones.
- Escisión lesional.

La estrategia específica toma en cuenta cuando hay compromiso vesical, de uréter, intestino, ligamentos útero sacros, vagina.

Finalmente una cirugía exitosa implica una serie de considerandos que el cirujano debe tener en cuenta:

- Competencia y experiencia (diagnóstico, anatomía, entrenamiento)
- Ambiente de trabajo.
- Calidad de la comunicación.
- Instrumentos.
- Equipo de trabajo.

Fig. 1 a 4 : Escicion De Nodulo Endometriosico En Parametrio Posterior Izquierdo

Fig. 1

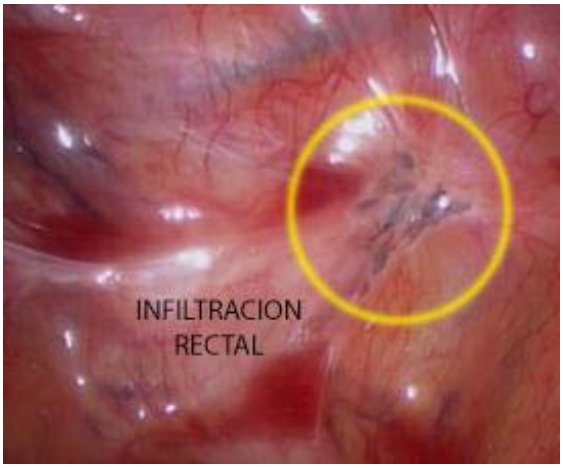


Fig. 2

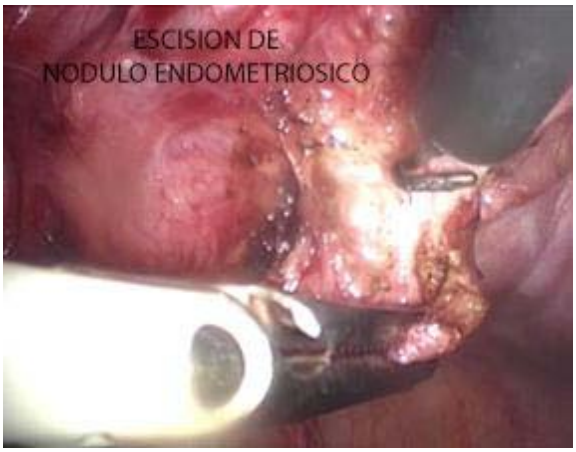
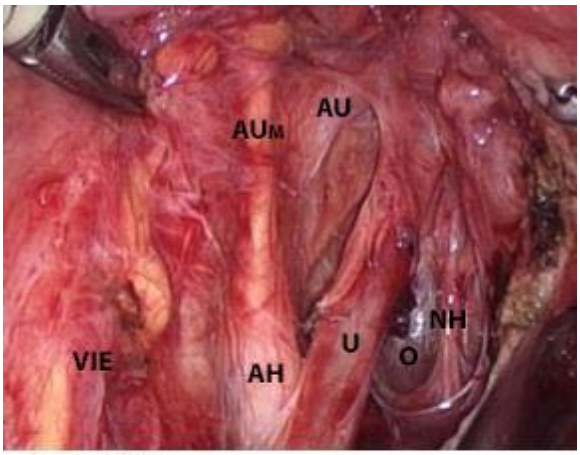


Fig. 3



VISTA FINAL

AUM: ARTERIA UMBILICAL
AU: ARTERIA UTERINA
AH: ARTERIA HIPOGASTRICA
U: URETER IZQUIERDO
NH: NERVIO HIPOGASTRICO INFERIOR
O: ESPACIO DE OKABAYASHI
VIE: VENA ILIACA EXTERNA

Fig. 4

Fig. 5 a 7 : Escicion De Nodulo Endometriosico En Ureter Derecho

Fig. 5

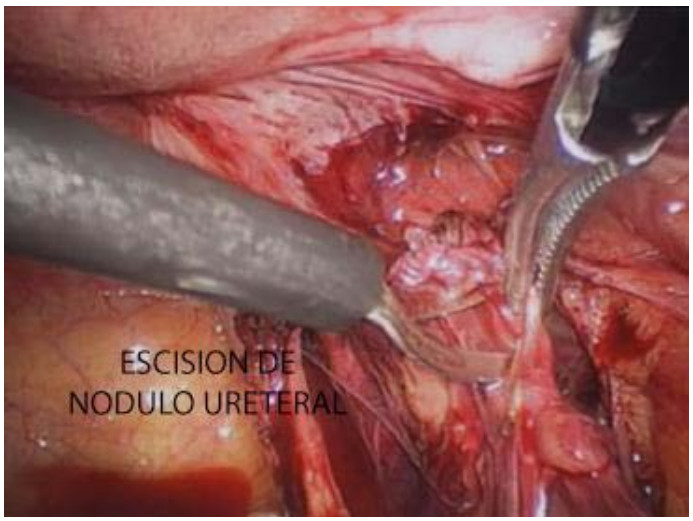
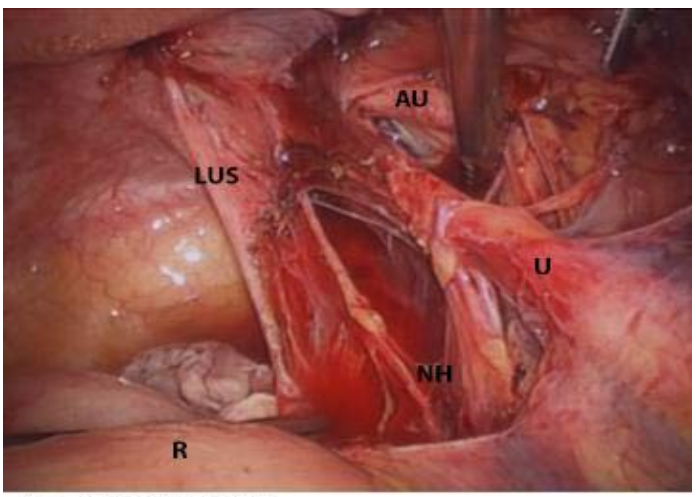


Fig. 6



AU: ARTERIA UTERINA
NH: NERVIO HIPOGASTRICO INFERIOR
U: URETER DERECHO
LUS: LIGAMENTO UTERO-SACRO
R: RECTO

Fig. 7

IV. Conclusiones

Considerando la naturaleza de la enfermedad endometriósica y el dolor crónico asociado, el tratamiento es todo un desafío. Partiendo de la comprensión de la enfermedad, el ser multifactorial y no tener una etiología definida, el tratamiento de esta condición, es básicamente empírico. Las alternativas médicas que incluyen la supresión hormonal, han probado ser de una efectividad limitada, no existe aún el medicamento ideal. El tratamiento quirúrgico está diseñado cuando el dolor no puede ser manejado solo médicamente y hay afectación de la calidad de vida. El tratamiento quirúrgico es complejo y no está exento de complicaciones y que en algunas circunstancias no siempre logra su cometido, por lo que se requiere una serie de condiciones para lograr que la cirugía cumpla con su finalidad: aliviar el Dolor.

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Acute Pelvic Pains of Women in the Brazzaville University Hospital: Diagnostic Orientation

By Jean Alfred Mbongo, Haba Foromo, Fabrice Otiobanda & Léon Hervé Iloki

Abstract- The objective of this work was to give a working diagnosis if pelvic pains acute, the woman at University Hospital of Brazzaville.

Methods: We carried out a descriptive and prospective study over a period of five months, from 2nd June to 2nd October 2015 in the Obstetrics and Gynecology Unit at CHU Brazzaville. Patients who presented with Acute Pelvic Pain and who gave their consent were included in the study. All those in the third trimester of pregnancy and in the post partum period were excluded.

Data was analyzed using Epi info version 3.5.4. software

Results: We registered a total of 410 cases of pelvic pain out of the 6345 patients representing 6.4%. Of these, 285 were cases of acute pelvic pain, representing 4.5% of the total consultations in the service.

Keywords: acute pelvic pain; congo-brazzaville.

GJMR-E Classification : NLMC Code: WQ 400

Strictly as per the compliance and regulations of:

Acute Pelvic Pains of Women in the Brazzaville University Hospital: Diagnostic Orientation

Algies Pelviennes Aigues De La Femme, Au Centre Hospitalier Universitaire De Brazzaville: Orientation Diagnostique

Jean Alfred Mbongo [α], Haba Foromo [σ], Fabrice Otiobanda [ρ] & Léon Hervé Iloki [ω]

Résumé- L'objectif de ce travail était de donner une orientation diagnostique en cas algies pelviennes aiguës, de la femme au Centre Hospitalier et Universitaire de Brazzaville.

Méthodologie: Nous avons mené une étude descriptive, prospective, sur une période de cinq mois, allant du 2juin au 2 octobre 2015, dans le service de gynécologie obstétrique du CHU de Brazzaville. Les patientes présentant une algie pelvienne aiguë(APA) et ayant accepté de participer ont été incluses dans notre étude. Celles au troisième trimestre de grossesse et en post-partum ont été exclues.

Les données ont été analysées à l'aide du logiciel Epi info version 3.5.4.

Résultats: Nous avons enregistré au total 410 cas d'algie pelvienne sur 6325 patientes, soit 6,4%, parmi lesquelles 285 algies pelviennes aigues, soit une fréquence de 4,5% de l'ensemble des consultations du service.

Les APA surviennent souvent chez la femme sans emploi 31,5% (26,3-37,1) ; célibataire 56,1% (50,3-61 ;8) ; peu scolarisée 61,4% (55,6-66,9) ; ayant un seul partenaire sexuel actuel 68,8%(62,8-73,6) ;sans notion de contraception 64,2% (58,1-69,7) ;sans antécédent de dysménorrhée 94,3% (91,2-96,6) ;ni d'avortement 69,8% (64,3-74,9) ; avec un statut sérologique VIH inconnu 80,7%(75,8-84,9) ; et notion d'infection génitale 65,9% (60,3-71,2).

Les APA ont une durée d'évolution de 5jours, de début insidieux56,6% (52-64,2) ;de siège diffus 54,3%(48,5-60,1) ;sans rapport avec le cycle menstruel 86,6%(82,3-90,2); sans irradiation78,9%(73,9-83,3)à type de crampe31,9%(26,7-37,5) ; associées au saignement 52,6% (46,8-58,3) ;d'intensité sévère 60% ,avec abdomen sensible à la palpation 83,5% et mobilisation douloureuse de l'utérus 70,5%.

L'hémogramme 57,5% (51,1-63,1) et l'échographie 70%, ont été les examens souvent pratiqués. Les étiologies des APA étaient surtout en rapport avec les complications de la grossesse (60,6%) et les infections génitales hautes (13,9%).

Conclusion: Les algies pelviennes aiguës sont un motif fréquent de consultation en gynécologie. Leurs caractéristiques cliniques et paracliniques sont en rapport avec les étiologies. Les causes plus fréquentes ont été : les complications de la grossesse et les infections génitales hautes.

Mots clés: algies pelviennes aigues ; congo-brazzaville.

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Abstract- The objective of this work was to give a working diagnosis if pelvic pains acute, the woman at University Hospital of Brazzaville.

Methods: We carried out a descriptive and prospective study over a period of five months, from 2nd June to 2nd October 2015 in the Obstetrics and Gynecology Unit at CHU Brazzaville. Patients who presented with Acute Pelvic Pain and who gave their consent were included in the study. All those in the third trimester of pregnancy and in the post partum period were excluded.

Data was analyzed using Epi info version 3.5.4. software

Results: We registered a total of 410 cases of pelvic pain out of the 6345 patients representing 6.4%. Of these, 285 were cases of acute pelvic pain, representing 4.5% of the total consultations in the service.

Acute Pelvic Pain was found to occur more often in women who were unemployed 31.5%(26.3-37.1); single 56.1% (50.3-61 .8) ; under educated 61.4%(55.6-66.9) ;had only one current sexual partner 68.8%(62.8-73.6) ; had no notion of contraception 64.2%(58.1-69.7) ; had no past history of dysmenorrhoea 94.3%(91.2-96.6) nor abortion 69.8%(64.3-74.9) ; whose HIV status was unknown 80.7%(75.8-84.9) ; and who had previously suffered from a genital tract infection.

The acute pelvic pain; evolved over 5 days; was of insidious onset 56.6% (52-64.2) ; diffuse 54.3% (48.5-60.1) ; not related to the menstrual cycle 86.6% (82.3-90.2); had no irradiations 78.9% (73.9-83.3); was crampy in nature 31.9% (26.7-37.5) ; associated to bleeding 52.6% (46.8-58.3) ; and severe 60%, with a tender abdomen 83.5% and tenderness on mobilization of the uterus 70.5%.A complete blood count 57.5% (51.1-63.1) and pelvic ultrasound 70%, were the tests usually carried out. The etiologies registered were mostly complications of pregnancy 60.6% and upper genital tract infections 13.9%.

Conclusion: Acute Pelvic pain is a common presenting complaint in gynecology. The clinical and paraclinical characteristics are related to the etiologies. The most frequent causes registered were complications of pregnancy and upper genital tract infections.

Keywords: acute pelvic pain; congo-brazzaville.

I. Introduction

Les algies pelviennes aiguës (APA), constituent le motif le plus fréquent de consultation d'urgence en gynécologie [1]. La distinction entre le caractère aigu ou chronique d'une douleur pelvienne est parfois difficile, notamment dans le cadre de douleurs cycliques. De plus, il existe une diversité des étiologies

responsables des APA avec des implications thérapeutiques particulières ; ce qui impose, en cas d'APA, une rigueur diagnostique. En effet, certaines affections responsables des APA peuvent, en l'absence de diagnostic précoce et de traitement adapté, avoir de graves conséquences et engager le pronostic vital [1, 2]. Ainsi, la prise en charge diagnostique et thérapeutique des algies pelviennes constitue un problème majeur en consultation de gynécologie.

La rareté des travaux sur ce sujet dans la littérature africaine [3] justifie ce travail qui se propose de rechercher les étiologies des APA chez la femme au CHU de Brazzaville.

II. Patientes et Méthodes

Cette enquête, de type descriptive, a été réalisée dans le service de Gynécologie et Obstétrique du CHU de Brazzaville, du 5 juin au 2 octobre 2015. Elle a concerné toutes les patientes reçues en consultation de gynécologie-obstétrique pour une douleur pelvienne d'une durée inférieure ou égale à un mois et dont le consentement éclairé a été obtenu. Les femmes au troisième trimestre de grossesse et celles en post-partum n'ont pas été retenues pour cette étude. Toutes les femmes ont été colligées de façon exhaustive au fur et mesure de leur arrivée. Pour chacune d'elles, ont été étudiés, les caractéristiques sociodémographiques, les caractères de la douleur, les antécédents des patientes, les données de l'examen physique et para clinique et le diagnostic étiologique. L'intensité de la douleur a été évaluée à l'aide de l'échelle visuelle analogique. Ainsi, l'intensité de la douleur a été classée en trois catégories : faible (intensité=1 à 3), modérée (intensité = 4 à 7), et sévère (intensité= 8 à 10).

L'analyse des résultats s'est faite à l'aide du logiciel Epi Info version 3.5.4. Les données quantitatives ont été exprimées en moyenne et écart-type et, les données qualitatives en proportions avec leur intervalle de confiance à 95%.

III. Résultats

Au total, 410 patientes ont consulté pour des algies pelviennes dont 285 APA sur 6325 patientes enregistrées dans le service de gynécologie obstétrique.

La moyenne d'âge était de 27,5 ± 5,6 ans. La tranche d'âge la plus représentée était celle des patientes âgées 24 à 28 ans. D'ailleurs, 82,4% d'entre elles avaient moins de 32 ans.

L'analyse du tableau I, indique que les APA concernaient les femmes sans emploi 31,5%, suivies des élèves /étudiantes 28% .Il s'agissait des célibataires dans 56,1% des cas.

Dans 58,6% des cas , la douleur était de début insidieux, diffuse(54,3%),sans irradiation (78,9%),sans rapport avec le cycle menstruel(86,6%).La douleur était associée au saignement (52,6%), aux leucorrhées (28%), aux vomissements (8,4%) ou aux lombalgies (3,8%). Dans 50% des cas ,la douleur évoluait depuis 5 jours ;il s'agissait d'une douleur sévère dans 60% des cas, modérée dans 30% des cas et minime dans 10% des cas.

La description des antécédents des patientes admises pour APA figure dans le tableau III.

La douleur pelvienne s'inscrivait dans un contexte de fièvre dans 21,4%, la palpation profonde était douloureuse dans 59,6% des cas et les fosses lombaires libres dans 95,7% des cas.

Enfin, le toucher vaginal était douloureux dans 70,5% des cas.

Nous avons eu recours à l'hémogramme dans 57,5% ; la vitesse de sédimentation globulaire (33,3%) ; la C-réactine protéine (29,8 %). L'examen cytobactériologique des urines a été pratiqué dans 17,5% des cas.

Si dans certains cas d'autres examens tels que la sérologie HIV, les béta-HCG plasmatiques, la sérologie Chlamydienne, les prélèvements cervico-vaginaux ont été jugés nécessaires ; dans 21% des cas, l'examen demandé n'a pas été pratiqué, soit il n'a pas été jugé indispensable.

Sur un effectif de 285 patientes, 201 échographies pelviennes ont été réalisées soit70, 5% ; 6 cœlioscopies diagnostiques et/ou thérapeutiques soit 2,10% ; et 3 radio abdomen sans préparation soit 1,05%.

Les étiologies des APA, tableau IV étaient dominées par les causes liées à la grossesse, suivies des causes infectieuses.

IV. Discussion

La limite de notre étude était le recrutement non exhaustif des patientes. Ceci était dû au fait que les consultations ont été pratiquées par plusieurs praticiens, parmi lesquels les médecins au cours d'études de spécialisation en gynécologie. En outre, la taille de l'échantillon qui était petite, ne permettant pas de faire des analyses plus détaillées de certaines variables.

Cette étude portant sur 285 cas rapporte les aspects épidémiologiques, cliniques et étiologiques des APA. Il ressort que les APA surviennent surtout chez la jeune fille. La prépondérance des patientes de cette tranche d'âge par le fait que cette période est la plus propice à l'activité sexuelle. D'ailleurs, les étiologies incriminées en disent d'avantage. Et, Mikkelsen et al. [4], qui rapportent un âge moyen de 27,8 ans, et une prédominance (96%) des patientes âgées de moins de 35 ans. En dehors du jeune âge, les patientes de cette série présentent d'autres caractéristiques. Il s'agit notamment de la prédominance des célibataires ; et celles-ci associées aux veuves et aux femmes vivant en union libre, représentent le tiers des cas. La liberté sexuelle, prédominante dans cette catégorie, expliquent

la survenue fréquente des grossesses et dont des complications y relatives, et des infections génitales hautes. Le bas niveau d'instruction, prédominante dans cette étude, constitue une autre particularité, et un facteur aggravant de la liberté sexuelle. De plus, il représente un facteur limitant de la gestion plus rationnelle de l'information médicale et des méthodes contraceptives. En effet, pour Randriamiarisoa et al [3], la survenue d'une grossesse non désirée dans un contexte socio-économique défavorable pousse les jeunes vers l'interruption volontaire de grossesse clandestine avec ses complications.

La douleur s'installait fréquemment de façon insidieuse (56,6%). La prédominance dans les étiologies de l'association avortements non finis et infections pelviennes (45,6%) en constitue une explication comme le suggèrent Judlin et al. [5] pour qui, un début insidieux des algies pelviennes aiguës orienterait vers une inflammation pelvienne. D'ailleurs, la durée médiane d'évolution de 5 jours retrouvée dans cette étude concorde avec la prédominance d'avortements non finis et infections pelviennes. En effet, comme le signalent plusieurs auteurs [3, 6, 7], une durée d'évolution de la douleur supérieure à 4 jours est davantage évocatrice d'une infection génitale haute. D'ailleurs, les antécédents souvent retrouvés chez les sujets de cette enquête (tableau III) vont dans le même sens.

La sensibilité à la palpation abdominale (83,5%), l'écoulement sanglant à la vulve (76,49 %), au toucher vaginal**,** douleur à la mobilisation utérine (70,5%) étaient les signes fréquents de l'examen physique retrouvée (61,6%). Tout est en rapport avec les étiologies des APA. Il en de même pour les examens biologiques : Hémogramme (57,4%), ECBU (17,5%) Béta HCG plasmatiques (14,7%) et C RP (29,8%).

L'hémogramme avec dosage de la CRP, en cas d'absence d'anomalie n'infirme pas le diagnostic/ n'exclut pas le diagnostic d'infection génitale haute non compliquée [8].

L'échographie pelvienne a été pratiquée dans la plus part des cas (70,52%). Ce résultat se justifie par le fait que l'échographie est un examen peu onéreux, non invasif, relativement facile à réaliser et accessible. Cela concorde avec les données de la littérature qui disent que l'échographie doit être réalisée d'une manière standardisée [9]. L'échographie pelvienne ne pas le diagnostic positif de toutes les pathologies mises en cause en cas d'APA. Son rendement est très opérateur dépendant dans le diagnostic d'appendicite aigue. L'échographie associée au Doppler pourrait constituer une aide dans certaines situations. Dans l'infection génitale haute, il pourrait aider au diagnostic par calcul de l'index de vascularisation et de pulsatilité qui lui confèrerait une sensibilité à 100% dans la GEU [9]. D'autres auteurs [10, 11], aussi recommandent la pratique systématique de l'échographie en cas d'algies pelviennes aiguës.

La cœlioscopie diagnostique, pourtant considérée comme le gold standard dans la prise en charge des algies pelviennes aiguës [2, 12,13], n'a été réalisée que chez 6 patientes.

L'utilisation « intensive » de la cœlioscopie diagnostique a été largement préconisée au début des années 1980 dans le but de limiter les erreurs diagnostiques ; ses complications imposent de limiter le nombre utile. Son intérêt se pose en cas d'APA dont l'étiologie n'est pas retrouvée par l'interrogatoire, l'examen clinique et les examens complémentaires non invasifs.

L'origine génitale des algies pelviennes aiguës prédominait (95,8% des cas) par rapport aux causes extra-génitales (4,2%). Ce résultat s'explique par des raisons d'ordre méthodologique. En effet, notre étude se déroulait dans un service de gynécologie obstétrique où les femmes sont reçues pour des motifs d'ordre génital. D'ailleurs, dans le travail de Kurt et al. [14] dont la méthodologie est proche de la nôtre, l'étiologie gynécologique représentait 93,2% des cas.

Les complications liées à la grossesse représentent les causes d'APA (60,70%) dans cette série. Ceci probablement en raison du manque d'instruction mais aussi du faible taux de prévalence contraceptive au Congo qui est de 26,6% [15].La primauté des complications liées à la grossesse dans les étiologies, est aussi rapportée par Randriamiariso et al [3]dans les causes d'APA non périodiques avec l'avortement ou menace (59,7%), GEU13,8%, infections génitales hautes (salpingite, Hydrosalpinx, pyosalpinx) (21,5%). Fauconnier et al. en France [16] vont dans le même sens, en rapportant que les complications de grossesse intra-utérines sont majoritaires (40,7%), certainement du fait de la proportion élevée de femmes enceintes dans leur étude (48,6%).Par ailleurs, Anteby et al. en Israël [12] et Kurt et al. en Iran [14] avaient trouvé une prédominance des kystes ovariens dans 27% et 50% respectivement; et pour Morino et al. en Italie, aucun diagnostic n'a été retrouvé dans la plus part des cas (37%) [17].

V. Conclusion

La fréquence des algies pelviennes était de 6,4% des motifs de consultation. Les algies pelviennes aiguës représentaient au moins 27,9% des patientes consultant pour algies pelviennes. La douleur se caractérisait par une durée d'évolution médiane de 5 jours, une intensité moyenne de 7,2±1,5, souvent sévère, insidieuse, à type de crampe (31,1%) et associée à des saignements (52,6%.) Le signe physique le plus fréquent était la douleur à la palpation profonde de l'abdomen (83,5%).

Les examens biologiques les plus demandés étaient l'hémogramme 57,5% ; la CRP (29,8%) et l'ECBU (17,5%). L'échographie pelvienne a été souvent réalisée (70,5%) et la cœlioscopie rarement (2,1%).Les

étiologies les plus fréquentes d'algie pelvienne aiguë étaient : les GEU (31,5%) et les avortements (27,7%), les infections génitales hautes (13%).

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Tableau I : Caractéristiques sociodémographiques

	N=285	%	IC
Profession			
Elève/ Etudiante	80	28,0	23,08-33,5
Sans emploi	90	31,5	26,3-37,1
Cadre moyen	60	21,0	16,6-26,0
Cadre supérieur	35	12,2	8,8-16,4
Statut matrimonial			
Célibataire	160	56,1	50,3-61,8
Mariée	48	16,8	12,8-21,5
Autres*	77	27,0	22,1-32,4
Niveau d'instruction			
Supérieur	40	14,0	10,3-18,4
Secondaire	70	24,5	19,8-29,8
Autres***	175	61,4	55,6-66,9

* *cadre moyen et supérieur*

** *Veuve, union libre*

*** *Primaire, non scolarisée*

Tableau II : Caractéristiques de la douleur

	Effectif =285	Total= 285 %	IC
Mode de début			
Brutal	118	41,4	35,7-47,2
Insidieux	167	58,6	52,8-64,2
Siège			
Localisé	130	45,6	39,8-51,4
Diffus	155	54,3	48,5-60,1
Rapport avec le cycle			
Oui	38	13,3	9,7-17,6
Non	247	86,6	82,3-90,2
Irradiation			
Oui	60	21,0	16,6-26,0
Non	225	78,9	73,9-83,3
Type de douleur			
Crampe	91	31,9	26,7-37,5
Brûlure	60	21,0	16,6-26,0
Torsion	40	14,0	10,3-18,4
Douleur seule	77	27,0	22,1-32,4
Douleur et autre signe fonctionnel	208	72,9	67,6-77,9
Signes fonctionnels associés			
Saignement	150	52,6	46,8-58,3
Leucorrhées	80	28,0	23,0-33,5
Vomissements	24	8,4	5,5-12,0
Lombalgie	11	3,8	2,0-6,6

Tableau III : Antécédents des patients

	Effectif	Total= 285 %	IC
Nombre de partenaires sexuels actuels			
Aucun	8	2,8	1,3-5,2
Unique	195	68,4	62,8-73,6
Multiple	82	28,7	23,7-34,2
Contraception			
Oui	102	35,7	30,3-41,4
Non	183	64,2	58,1-69,7
Dysménorrhée			
Oui	26	9,1	6,1-12,9
Non	269	94,3	91,2-96,6
Avortement			
Oui	199	69,8	64,3-74,9
Non	86	30,1	25,0-35,7
Statut sérologique VIH			
Inconnue	230	80,7	75,8-84,9
Positive	15	5,2	3,0-8,3
Négative	40	14,0	10,3-18,4
ATCD infection génitale			
Oui	188	65,9	60,3-71,2
Non	97	34,0	28,7-39,6
GEU			
Oui	18	6,3	3,9-9,6
Non	267	93,6	90,3-96,0
Infertilité			
Oui	20	7,0	4,4-10,4
Non	265	92,9	89,5-95,5
Chirurgie abdominopelvienne			
Oui	38	13,3	9,7-17,6
Non	245	85,9	8

Tableau IV : Etiologies algies pelviennes aiguës

	n	%	IC
Grossesse			
- GEU*	90	31,5	26,3 -37,1
- MFCS **	20	7,0	4,4-10,4
-Avortement incomplet	59/285	20,7	16,3-25,7
-Perforation utérine	4 /285	1,4	0,4-3,3
Infection			
-Péritonite	23/285	8,0	5,3-11,6
- Salpingite aigue	14/285	4,9	2,8-8,1
-Hydrosalpinx	3/285	1,0	0,2-2,8
Autres causes gynécologiques			
- Myomes en nécrobiose	5/285	1,7	0,6-3,8
- Syndrome Curtis Hugs Firtis	2/285	0,7	0,11-2,2
- Hématométrie	2/285	0,7	0,11-2,2
-Hématocolpos	3/285	1,0	0,2-2,8
-Hémorragie intra-kystique	5/285	0,7	0,11-2,2
-Torsion kyste de l'ovaire	8/285	2,8	1,3-5,2
Non gynécologique			
- Appendicite	5/285	0,7	0,6-3,8
- Lombalgie aigue	3/285	1,0	0,2-2,8
-pyélonéphrite aigue	4/285	1,4	0,4-3,3
Inconnues	36/285	12,6	9,1-16,8

**grossesse extra-utérine*

*** Menace de fausse couche spontanée*

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Assessment of Parent-Adolescent Communication about Sexual and Reproductive Health among High School Students in Mekelle Town, Northern Ethiopia

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Abstract- Parents have the potential to protect against adolescent sexual risk, including early sexual behavior and its outcomes such as unwanted pregnancy and sexually transmitted infections. The objective of this study therefore was to assess the status of adolescent-parent communication about sexual and reproductive health and associated factors among school students. Institution based cross sectional study was conducted. Data were entered, cleaned and analyzed using SPSS.

A total of 521 students were included in the study, making a response rate of 97%. Three hundred (57.6%) adolescents discussed about at least one sexual and reproductive health issues with their parents. Educational status of adolescents' parents, students' living arrangement and level of education of respondents were found to be independent predictors of adolescents' communication.

Keywords: adolescent, parent, communication, sexual, reproductive, health, northern ethiopia.

GJMR-E Classification : NLMC Code: WQ 200

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Zemenu Yowhanes [α], Hailemariam Berhe [σ] & Desta Hailu [ρ]

Abstract- Parents have the potential to protect against adolescent sexual risk, including early sexual behavior and its outcomes such as unwanted pregnancy and sexually transmitted infections. The objective of this study therefore was to assess the status of adolescent-parent communication about sexual and reproductive health and associated factors among school students. Institution based cross sectional study was conducted. Data were entered, cleaned and analyzed using SPSS.

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Keywords: adolescent, parent, communication, sexual, reproductive, health, northern ethiopia.

I. Introduction

According to world health organization (WHO), the term "adolescence is defined as period of life between 10-19 years [WHO, 2013; Society for public health education; WHO, 2012]. It represents a unique period of life characterized by significant physical, cognitive, emotional and social changes [CDC, 2004]. It is a transitional period from child hood to adult hood [WHO, 2014] marked by increasing levels of individual autonomy, growing sense of identity and self-esteem and progressive independence from adults [Save the children, 2009].

Traditionally, these group of people have commonly been regarded as healthy segment of the community and little attention have been given since the health care system was almost exclusively adult centered [Georg, 2012]. However, it is a period when health problems that have serious immediate consequences and behaviors that could have long lasting adverse effects on their future are initiated [WHO, 2010; CDC, 2007]. Because of the rapid physical, cognitive, and emotional developments that takes place before adequate information, skills and experience of life is achieved, adolescence is a time when many health problems first emerge unless managed properly [CDC, 2007; WHO, 2006].

The health status of adolescents is strongly connected to a number of risk behaviors, which are often established during the adolescent years that end in chronic and non-chronic diseases. These behaviors include: substance abuse, unhealthy dietary behaviors, inadequate physical activity, violence, risky sexual behaviors that contribute to unintended pregnancy and sexually transmitted infections including HIV infection [Society for Public Health Education,2012; WHO,2006].

One third of women worldwide give birth before the age of 20 each year and are at increased risk of morbidity and mortality due to obstetric complications. Annually, 5,000,000 and 70,000 adolescents between the ages of 15 and18 have unsafe abortions and abortion related deaths respectively [EFDR, 2004]. Moreover, adolescents are more likely to engage in a wide range of high risk sexual behaviors that can result in sexually transmitted diseases, including HIV [WHO, 2010].

Globally, One-third of all currently infected individuals are young people acquiring HIV infection every minute and more than 2.6 million each year [National center for Health Statistics, 2012].

In Ethiopia, like in other sub Saharan African countries, sexual and reproductive health problems of adolescents are high. Twelve percent of adolescent women are already mothers or pregnant with their first child [Central statistical agency, 2011] and 60% of adolescent pregnancies are unwanted or unintended [WHO, 2010].According to EDHS report, 1.9% and 3.8% of female and male adolescents had premarital sex respectively. Among those who have premarital sex only 45.5% women and 60% men used condom. This unsafe sexual intercourse leads to HIV prevalence of 0.2% among adolescent women [Central statistical agency, 2011].

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The health, safety and well-being of adolescents are affected by a complex interplay of factors between the individual and their surroundings, such as parents, peers, neighborhood, schools, community, health care systems, media, social norms, policies and laws. These factors collectively impact young people's ability to appropriately make healthy decisions [Interagency youth Working Group, 2007]. Parents in particular play a critical role in sexual socialization of their children and in helping them weigh the consequences of their behaviors [Interagency youth Working Group, 2007; WHO, 2012]. Good family communication regarding sexual risk behaviors promotes knowledge, better sexual negotiation skills and self-efficacy [WHO, 2006; WHO, 2012] and has been associated with less engagement in risky sexual behaviors [Weinstein & And, 2011].

Despite its importance, communication about sexual and reproductive health is greatly influenced by the culture and social environment. Parent-adolescent communication remains challenging in many sub-Saharan African countries including Ethiopia as the social milieu in many traditional communities still limit. Initiating conversations about the sexual issues may be difficult for parents as they may be unsure as to how to approach such issues, doubt their competence in handling sexuality topics and the questions that may be raised by their adolescence or feel confused about the proper amount of information to offer[EFDR, 2004].

While parent-adolescent communication has critical role in preventing adolescents from engaging in risky sexual behaviors and promoting access to contraceptives and maternal health services, earlier studies in Ethiopia have paid limited attention to adolescent health and the level of communication is not well documented. The objective of this study therefore is to determine the level of parent- adolescent communication about reproductive and sexual health and associated factors among secondary and preparatory school students in Mekelle University.

II. Methods and Materials

a) Study setting and period

This study was conducted from Jan 2013-August 2013 in Mekelle Town. Mekelle is located in the northern part of Tigray regional state, 783 Kilometers away from Addis Ababa, capital city of Ethiopia. It covers 28 square kilometers and has an estimated population of 289,756 [UNFPA, 2003].The town has a total of 24 secondary and preparatory schools (eight governmental and sixteen private schools). The total number of students for the academic year 2012/2013 was 21,173. Of those, 45.1% and 54.89 were males and females respectively [Tigray region education bureau, 2013].

b) Study design and Population

A school based cross-sectional study involving qualitative method was undertaken among randomly selected unmarried adolescent students aged 10-19 who was attending secondary and preparatory school during the time of data collection. Mentally and/or physically incapable adolescents' students were excluded from the study.

c) Sample size determination and sampling procedure

Single population proportion formula was used to calculate the required sample size. Proportion of parent-adolescent communication about sexual and reproductive health [Tesso et al, 2012], margin of error, confidence interval, design effect and non-response rate were assumed to be 69.5%, 5%, 95%, 1.5 and 10%, respectively.

$$n_i = \frac{Z(\alpha/2)^2 P(1-P)}{d^2}$$

Where: n_i= Sample size; $Z(\alpha/2)^2$ = confidence interval; P = proportion of parent adolescent communication (0.695.); D = marginal of error

$$\text{Thus, Ni} = \frac{(1.96)^2 (0.695)(1-0.695)}{(0.05)^2} = 325$$

Finally, taking 10 % non-response rate and 1.5 design effect: 10 % x 325 = 358*1.5= 537 participants were selected.

Multistage sampling technique was used to select the study subjects. First, all the schools in the town were stratified in to private and governmental. Then 3 out of 16 private and 3 out of 8 governmental schools were randomly selected. Then schools were further stratified by grade and section. Calculated sample size was proportionally allocated to private and governmental schools according to their number of students. Then, frames of students were developed from student roster of each grade in collaboration with instructors of respective classes. Students whose age range 10-19 years were selected using simple random sampling from the existing sampling frame (students' roster). In every step of selection simple random sampling technique was used.

d) Data collection tool and process

Structured self-administered questionnaire was prepared and utilized after reviewing relevant literatures. The main contents of the questionnaire were socio-demographic characteristics, knowledge of major reproductive and sexual health, sexual attitude and behavior, parental monitoring and communication with adolescents. The questionnaire was prepared in English and then translated to Tigrigna (local language).To check its consistency, it was back translated to English by an expert of both languages. After extensive

evaluation, final version of the questionnaire was developed.

Six 12th grade completed female interviewers who were fluent in the local language (Tigrigna) and are familiar with the local customs collected the data. Two diploma holder health care workers with similar work experience were assigned to supervise the data collection process.

Training was given for both data collectors and supervisors by the principal investigator for two days. The training session includes the general objective of the study; content of the questionnaire, ways how to keep confidentiality and privacy and ways how to resolve when a problem arises.

e) Data Quality Control

An individual who have the ability to speak and write both English and Tigrigna languages translated the questionnaire. In order to identify the clarity and consistency of the questionnaire it was pretested on 5% of the sample in a similar population in Wukro high school and preparatory school other than the schools in the study area and necessary modifications such clarity and consistency of questions and evidence based time allocation for each respondent were made accordingly. All the data collected from each respondent were checked for completeness, clarity and consistency by the principal investigator and the supervisors immediately at the end of each data collection days.

f) Data processing and analysis

Data were entered, coded and cleaned using SPSS version 16 software. Univariate analysis was computed for each independent variable to assess their individual proportion. Then, bivariate analysis was done to examine crude association of predictors on parent adolescent communication. Finally, by selecting eligible variables using forward logistic regression, the independent effect of predictors on parent- adolescent communication about sexual and reproductive health were examined. Odds ratio and 95% CI were used to measure the statistical association. P value 0.05 was used to determine the statistical significance of the tests. Finally, the results were presented in texts, tables and graphs.

g) Ethical Consideration

After it was thoroughly reviewed, ethical approval was secured from Mekelle University college of Health Science (MUCHS) and permission to conduct the study was obtained from Tigray regional education bureau and management body of the respective school facilities. Informed written consent was obtained from each respondent. Involuntary participants were free to withdraw from the study. Questionnaires were coded instead of using names as identification and hence, confidentiality was assured throughout the study.

III. Results

a) Socio- demographic characteristics of adolescents

A total of 521 respondents included in the study making a response rate of 97%. Sixteen questionnaires which were initially administered to respondents were excluded as they were incompletely &/or inconsistently filled. Thus, analysis was made based on 521 respondents. Among the study subjects, 231 (44.3%) were males and 290(55.7%) were females making the male to female ratio of 1 to 1.3. Mean age of respondents' was16.59± 1.33SD years ranging from 13-19 years. Tigray by ethnicity and Orthodox by religion were found to be 502 (96.4%) and 464 (89.1%) respectively. Majority 388 (74.5%) of the respondents were living with both of their fathers and mothers. Regarding the educational status of their parents, Only 108(20.8%) and 37(7.1%) of their mothers and fathers were illiterate respectively (table1).

Table 1 : Socio-demographic characteristic of adolescent students in Mekelle town, Tigray region, Ethiopia, 2013

Variable	Number	Percent
Sex		
Male	231	44.3
Female	290	55.7
Age		
10-14	22	4.2
15-19	499	95.8
Grade		
Grade 9	144	27.6
Grade 10	157	30.1
Grade 11	117	22.5
Grade 12	103	19.8
Type of school		
Private	66	12.67
Public	455	87.33

Religion		
Orthodox	464	89.1
Muslim	30	5.8
Others[↑]	27	5.1
Ethnicity		
Tigray	502	96.4
Amhara	16	3.1
Others[♥]	3	0.5
Living arrangement		
With both parents	388	74.5
With mother only	88	16.9
With father only	13	2.5
With other relatives	10	1.9
With others[♣]	21	4
Mother's educational status		
Illiterate	108	20.8
Read and write	122	23.4
Primary (1-8)	46	8.8
Secondary (9-12)	87	16.7
12+	158	30.3
Father's educational status		
Illiterate	37	7.1
Read and write	105	20.2
Primary (1-8)	42	8.1
Secondary (9-12)	78	15
12+	206	28.4
Mothers Occupation		
House wife	208	39.9
Employed	157	30.1
Merchant	118	22.6
Farmer	7	1.3
Others[☞]	6	1.2
Family size		
<5 years	262	50.2
>=5years	259	48.8
Family income		
<500	4	0.8
500-1000	6	1.2
>1000	69	13.2
Don't know	442	84.8

[♣]Aunt, grandparents, uncle, sister, brother; [↑]Protestant, catholic; [♥]Oromo, Guragie; [☞]carpenter, tela (local bear) seller

b) Knowledge of adolescents about contraceptive methods & sexually transmitted infections

Among the adolescent students, 409 (78.5%) were aware of at least one contraceptives methods. Three hundred four (64.1%) & 301 (57.8%) participants reported that they had heard about condom and pill respectively (fig1).

Adolescent students were asked to spontaneously mention STI. Accordingly, 415(79.7%) respondents mentioned at least one type of STI. Among the respondents, 399(76.6%), 302 (58%), 293(56.2%), 270(51.8%) and 114(21.9%) knew about HIV/AIDS, Gonorrhea, syphilis, Chancroid and lymphgranulo-mavenerum respectively.

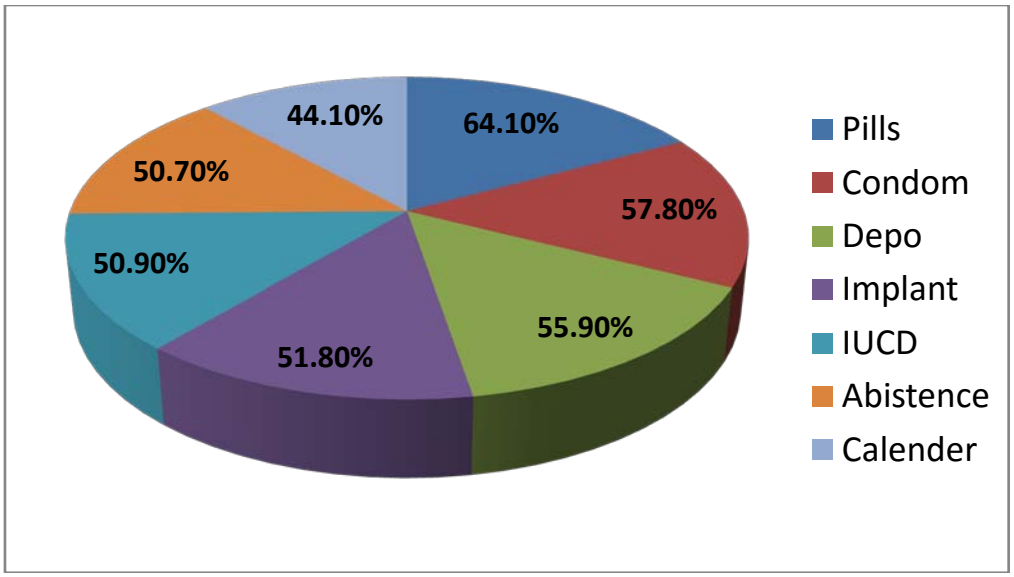

Figure 1 : Knowledge of adolescent students about contraceptive methods in Mekelle town, Tigray region, Ethiopia, 2013.

c) *Sexual Behavior of adolescent students*

One hundred nineteen (22.8%) of the students believed that it is normal and acceptable to have sexual feeling during adolescent period. Majority of the respondents 341(65.5%) believed that sexual intercourse should not be made before marriage. Regarding their practice, Eighty three (15.9%) of the students had made sexual intercourse. The mean age when sexual practice started was 15.9±1.6. Among those who practiced sexual intercourse, 22(26.5%) reported, they made sexual intercourse with unknown person. Most 60 (72.28%) of the students made sex using condom.

d) *Attitude and practice of adolescent students towards parental monitoring*

Most 344(66%) of the respondents agreed that parental monitoring to adolescents activities should be in place. Ninety (38.1%) of females reported that they were not allowed to have relationship with opposite sex, while the rest 146(61.86 %) were allowed. Three hundred forty eight (66.8%) of the students reported that their parents knew with whom their son or daughter are when out of home, while 173(33.2%) of the respondents reported that parents did not know.

e) *Parent-adolescent Communication & source of information about sexual & reproductive health issues*

Two hundred ninety six (56.8%) of respondents got information on sexual &RH issues from school followed by media 239 (45.9%) (fig2).

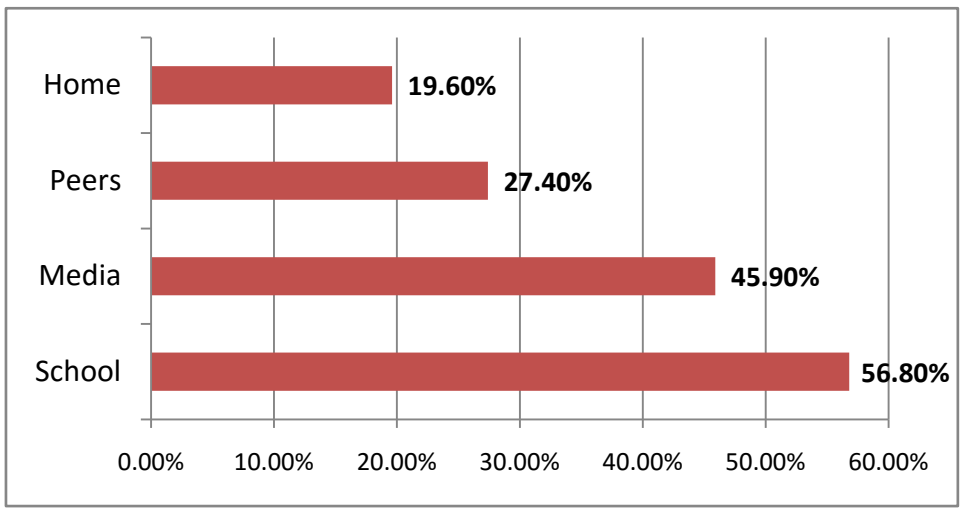

Figure 2 : Adolescents source of information about SRH, Mekelle town, Tigray region, Ethiopia, 2013.

Three hundred (57.6%) participants reported that they had discussed about at least one topic of sexual and /or reproductive health with either of their parents. Cultural unacceptability, being ashamed and lack of knowledge were major reasons cited by participants for not discussing about family planning (Table3)

Table 1 : Adolescent students' reason for not discussing with their parents about SRH in Mekelle town, Tigray region, Ethiopia, 2013

Topic	Not discussed*	Reasons for not discussing about SRH						
		Culturally unacceptable*	Shame*	Parents lack of comm. Skill*	Parents lack of knowledge*	Taboo* (Religious)	Parents are not good listener*	Do not know*
Contraceptive	337(64.7)	45(8.6)	93(17.9)	18(3.5)	56(10.7)	16(3.1)	25(4.8)	82(15.2)
HIV|AIDS	197(37.8)	17(3.3)	46(8.8)	13(2.5)	26(5)	10(1.9)	15(2.9)	56(10.7)
Sexual intercourse	335(64.3)	33(6.3)	108(20.7)	18(3.5)	36(6.9)	17(3.3)	21(4)	76(14.6)
Unwanted pregnancy	292(56)	22(4.2)	73(14)	20(3.8)	32(6.1)	19(3.6)	22(4.2)	84(16.1)
Premarital sex	288(55.3)	22(4.2)	80(15.4)	15(2.9)	25(4.8)	23(4.4)	24(4.6)	79(15.2)
Condom	366(70.2)	38(7.3)	107(20.5)	22(4.2)	39(7.5)	5(1)	20(2.8)	114(21.9)
Puberty	250(48)	12(2.3)	74(14.2)	15(2.9)	30(5.8)	19(3.6)	22(4.2)	60(11.5)

**Percents are in brackets*

f) Factors associated with adolescent-parent communication about sexual and reproductive health matters

In multivariate logistic regression analysis, parents' educational status, living arrangement and level of education of respondents were found to be significantly associated with communication of adolescents with their parents about sexual and reproductive health matters (table 4).

Table 4 : Multivariate analysis of factors related to communication of adolescents about SRH with their parents in Mekelle town, Tigray region, Ethiopia, 2013

Variable	Discussed on SRH Yes	No	Adjusted OR	P-value
Sex				
Male	129(55.8%)	102(44.2%)	1	
Female	171(59%)	119(41%)	0.90(0.62-1.30)	0.58
Age category				
10-14	13(59.1%)	9(40.9%)	1.36(0.51-3.38)	0.57
15-19	287(57.5%)	212(42.5)	1	
Living arrangement				
With both parents	227(58.5%)	161(41.5%)	**2.01(1.09-3.68)**	**0.02 ♣**
With mother only	43(48.9%)	45(51.1%)	0.48(0.11-2.16)	0.34
With father only	10(76.9%)	3(23.1%)	1.27(0.54-2.96)	0.58
With others♥	20(62.5%)	12(37.5%)	1	
Grade				
9th	70(48.6%)	74(51.4%)	1	
10th	85(54.1)	72(45.9%)	0.75(0.46-1.23)	0.27
11th	80(68.4%)	37(31.6)	**0.42(0.24-0.74)**	**0.003 ♣**
12th	65(63.1%)	38(36.9%)	**0.55(0.31-0.97)**	**0.04 ♣**
Mothers' education				
No formal education	120(52.2%)	110(47.8%)	1	
Elementary	27(58.7%)	19(41.3%)	0.51(0.25-1.06)	0.07
12+	153(62.4%)	92(37.6%)	**3(1.271-2.75)**	**0.002 ♣**
Fathers' education				
No formal education	112(57.4%)	83(42.6%)	1	
Elementary	24(57.1%)	18(42.9%)	1.86(0.60-4.19)	0.14
12+	164(57.7%)	120(42.3%)	**1.80(1.03-3.13)**	**0.04 ♣**
Mothers' occupation				
Employed.	93(59.2%)	64(40.8%)	1.58(0.60-4.19)	0.36
House wife	113(54.3%)	95(45.7%)	1.46(0.60-3.62)	0.39
Merchant	68(57.6%)	50(42.4%)	1.41(0.55-3.64)	0.48
Others	26(68.4%)	12(31.6%)	1	
Fathers' occupation				
Employed	147(58.1%)	106(41.9%)	1.19(0.58-2.45)	0.63
Merchant	105(56.1%)	82(43.9%)	1.48(0.60-3.62)	0.39
Others♦	48(59. 3%)	33(40.7%)	1.41(0.545-3.64)	0.48
Family size				
<5	84(58.3%)	60(41.7%)	0.92(0.59-1.43)	0.71
>=5	216(57.3%)	161(42.7%)	1	
Know at least one contraceptive method				
Yes	241(58.9%)	168(41.1%)	0.71(0.45-1.11)	0.14
No	59(52.7%)	53(47.3%)	1	
Believe sex education is necessary				
Yes	256(60.7%)	166(39.3%)	0.55(0.345-1.88)	0.61
No	44(44.4%)	55(55.6%)	1	

♣p value<0.05 ; ♥Aunt, grandparents, uncle, sister, brother; ♦carpenter, farmer

Level of education showed strong statistical association with communication about sexual and reproductive health. Adolescents whose mothers educational level was 12 and above were about 3 times (AOR=3, 95% CL: [1.271-2.75]) more likely to communicate about sexual and reproductive health matters with their parents as compared to those who had not attended formal education. Similarly, father's educational status has revealed a significant association with the communication about sexual and reproductive health issues. Adolescents whose father's educational level were 12 and above were about 2 times

(AOR=1.80, 95% CL: [1.03-3.13]) more likely to communicate about sexual and reproductive health matters with their parents as compared to those who had no formal education.

On the contrary, adolescents' level of education was found to be negatively related with the outcome variable. Adolescents whose level of education was 12 were less likely to communicate about sexual and reproductive health with their parents as compared to those whose educational level was grade nine (AOR: 0.55, 95%CI: [0.31-0.97]).

IV. Discussion

Parents are important role models in adolescents' lives; they can directly or indirectly transmit values, traditions and life styles to their children. Positive family communication helps teens develop the values, security, and sense of worth that can lead to healthy decision making. This school based cross-sectional study has therefore examined adolescent communication with their parents concerning sexual and reproductive health matters among adolescent students in Mekelle secondary and preparatory school students, Tigray region, Ethiopia.

In line with the evidence from a study done in Nekmete town, and Myanmar [Seme & Wirtu, 2008; Nuoo et al, 2011], the finding of the present study indicated that the prevalence of adolescents' communication about at least one sexual and reproductive health matters with their respective parents was 57.6%. This finding was higher when compared to the result of a cross sectional study done in Benishangul gumuz regional state 28.9% [Yesus & Fantahun, 2010] and Debremarkos town 36.9% [Shiferaw et al, 2014]. This might be due to the time gap that there could be improvement in accessing and utilizing sexuality and reproductive health service. However, it is by far lower than study findings from United States and Mexico [Jerman & Constantine, 2010; Erika, 2009] where 85% and 81.5 % adolescents communicated with their parents about SRH matters respectively. This difference could be attributed to the fact that proportion of parents in the United States was more educated, reproductive health services were accessible in-terms of minimal distance and transport availability, and adolescents could have better decision making autonomy.

In multivariate analysis, level of education showed strong statistical association with communication about sexual and reproductive health. Adolescents whose mothers' educational level 12 and above were about 3 times more likely to communicate about sexual and reproductive health matters with their parents as compared to those whose parents had not attended formal education. Similarly, adolescents whose father's educational level 12 and above were about 2 times more likely to communicate about sexual and reproductive health matters with their parents when compared to those whose parents had no formal education. This is congruent with previous finding from study done in Rwanda [Bushaija et al,2013].The possible explanations might be educated parents have better access to health service information, improved perceptions of the causes and treatment of sexual and reproductive system related disease and play critical role in helping their children use quality reproductive healthcare services.

In contrary to evidence from a study done in Nekemte, Debremarkos and Lincoln [Seme & Wirtu, 2008; Shiferaw et al, 2014; Raffaelli & Green, 2003], this finding revealed that adolescents whose level of education was 12 were less likely to communicate about sexual and reproductive health with their parents as compared to those whose educational level was grade nine. This might be due to the reason that as educational level of adolescents increase they start underestimating the idea of their parents as they believe that they are more knowledgeable than their mothers or fathers and may not get inspired to communicate about sexual and reproductive health.

Among respondents who made communication regarding SRH matters, 12.9% and 31.9% adolescents discussed about premarital sex with their father and mother respectively. This is higher when compared with the findings from study in Deberemarkos [Shiferaw et al, 2014], where 11.3and 15.3 of adolescents' father and mother discussed about premarital sex respectively. In line with a finding from study done in Deberemarkos [Shiferaw et al, 2014], this study showed that the major reason for not discussing premarital sex was being ashamed. This can be attributed to the taboo nature of sexual and reproductive communication in traditional African settings including Ethiopia.

When interpreting the finding of this study, some limitations should be considered.

Communication on sexual and reproductive health as well as sexual behaviors was based on the self-report of respondents, and provided no validation of obtained information with any objective source, which was likely to be subjected to reporting biases. Moreover, this study was based on cross-sectional data, which implies that the direction of causal relationships cannot be determined.

V. Conclusion and Recommendations

In this study almost half of school adolescent has never had communication with their parents regarding sexual and reproductive health matters. Educational status of their mother and father, living arrangement and level of education of respondents were found to be significantly associated with communication of adolescents with their parents about sexual and reproductive health matters. Among the respondents

who made communication regarding SRH matters, only very small number of them discussed about early sexual practice and sexual transmitted infections with their parents. The major reason respondents expressed for not discussing early sexual practice, contraception, sexual transmitted infections and unwanted pregnancy was being ashamed.

Based on the findings of the study, the following recommendations were made.

This study showed that a significant proportion of adolescents did not discuss with their parents about at least one sexual and reproductive health matters. Therefore, the MOH, and other concerned stalk holders that are working in areas of reproductive health should strengthen existing strategies including provision of information, education and communication targeting adolescents and their parents to increase their awareness mainly about the impact of early sexual practice and its outcomes such as unwanted pregnancy and sexually transmitted infections (STIs).

As educational level of parents is a critical factor in advancing parent-adolescent communication about SRH matters, policy makers and program managers should focus on encouraging parents to pursue formal education. Moreover, health care providers should be effective in equipping adolescents with adequate sexual and reproductive health information, being respectful and keeping their privacy during their visit to health facility. Finally, further research with robust analytical studies on timing of parents–adolescents communication regarding sexuality and reproductive health related issues and its effect on safe sexual behaviors.

Abbreviations

EDHS: Ethiopian Demographic and Health Survey;
SRH: Adolescent Sexual and Reproductive Health;
MDG: Millennium Development Goals;
AIDS: Acquired immune deficiency syndrome;
RH: Reproductive Health**;**
STI: Sexual transmitted infection;
WHO: World Health Organization.

Competing interests

The authors declare that they have no competing interests.

VI. Acknowledgements

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Assessment of Magnitude and Factors Associated with Birth Preparedness and Complication Readiness among Pregnant Women Attending Antenatal Care Services at Public Health Facilities in Debrebirhan Town, Amhara, Ethiopia, 2015

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Abstract- *Background:* Birth preparedness and complication readiness (BPCR) is a key component of globally accepted safe motherhood programs, which helps ensure women to reach professional delivery care when labor begins and to reduce delays that occur when mothers is in labor& experience obstetric complications.

Objective: To assess the magnitude and factors associated with birth preparedness and complication readiness among pregnant women attending antenatal care services at public health facilities in Debrebirhan town, Amhara, Ethiopia, 2015.

Methods: Cross-sectional facility based study was used. The required sample size was 356. The collected data was coded and entered to Epi-Info version 3.5.1 and transferred to SPSS version 20 for analysis. Binary and multiple logistic regression analyses were conducted.

Keywords: *birth preparedness, complication readiness, debrebirhan, ethiopia.*

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Abreham Hailemariam [1], Honelgn Nahusenay [2], Dr. Ewnet G/Hana [3], Ayalkibet Abebe [4] & Bisrat Getaneh [5]

ABSTRACT

Background: Birth preparedness and complication readiness (BPCR) is a key component of globally accepted safe motherhood programs, which helps ensure women to reach professional delivery care when labor begins and to reduce delays that occur when mothers is in labor& experience obstetric complications.

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Methods: Cross-sectional facility based study was used. The required sample size was 356. The collected data was coded and entered to Epi-Info version 3.5.1 and transferred to SPSS version 20 for analysis. Binary and multiple logistic regression analyses were conducted.

Results: Only 53.9% with 95% CI (48.9, 59.0) of the respondents were well prepared for birth and its complication. Variables having statistically significant association with BPCR of women were knowledge of BPCR (AOR = 2.08, 95% CI = 1.16, 3.73), PNC follow-up (AOR 2.79, 95% CI=1.73, 4.48) and early ANC visit (AOR = 2.06, 95% CI = 1.11, 3.83).

Conclusions: The finding of this study showed that it is not enough to bring positive change for preparedness of birth and its complication. Knowledge on BPCR planned PNC follow-up, and early ANC follow up were independent factors of birth preparedness and complication readiness.

Keywords: birth preparedness, complication readiness, debrebirhan, ethiopia.

Introduction

Birth preparedness and complication readiness (BPCR) is the process of planning for normal birth and anticipating the actions needed in case of an emergency. Women and newborns need timely access to skilled care during pregnancy, childbirth, and the postpartum/newborn period. Too often, however, their access to care is impeded by delays—delays in deciding to seek care, delays in reaching care, and delays in receiving care. These delays have many causes, including logistical and financial concerns, gaps in services, as well as inadequate community and family awareness and knowledge about maternal and newborn health issues. BPCR plan reduces delays in deciding to seek care in two ways. First, motivating pregnant women to plan to have a skilled provider at every birth. If women and families make the decision to seek care before the onset of labor, and they successfully follow through with this plan, the woman will reach care before developing any potential complications during childbirth, thus avoiding the first two delays completely. Second, complication readiness plan raises awareness of danger signs among women, families, and communities, thereby improving problem recognition and reducing the delay in deciding to seek care (1, 2, 3, 4, 5).

The principle of BPCR in a third world setting where there is prevailing illiteracy, inefficient infrastructure, poor transport system, and unpredictable access to skilled care provider have the potential of reducing the existing high maternal and neonatal morbidity and mortality rates. BPCR promotes skilled care for all births and encourages decision making before the onset of labor. It provides information on appropriate sources of care (promoters and facilities) making the care-seeking process more efficient. It also encourages households and communities to set aside money for transport and service fees, avoiding delays in reaching care caused by the search for funds. (6, 7).

Data generated by the World Health Organization (WHO) indicated that more than half a million women were dying each year from the complications of pregnancy and childbirth, with the vast majority of these deaths (99%) occurring in the developing world. BPCR raises awareness about the

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scope and consequences of poor maternal health, and to mobilize action to address high rates of death and disability from the complications of pregnancy and childbirth. The purpose of the BPCR is to encourage pregnant women, their families, and communities to plan for normal pregnancies, deliveries and to prepare to deal effectively with emergencies if they occur. Birth planning is important because of the unpredictability of obstetric complications (8, 9).

It has been acknowledged that receiving care from a skilled provider is the single most important intervention in safe motherhood but often women are confronted with delays in seeking care.

This study focuses on ANC attending woman's Birth Preparedness and Complication Readiness. There is a significant interrelationship between BPCR and ANC follow up. In this regard Ethiopia is among many African countries where home delivery is widely practiced. According to mini EDHS 2014, data shows in Amhara region only 17.1% of pregnant women were informed of signs of pregnancy complications and institutional delivery of only 10.3%. Despite the fact that emphasis is given by the national strategy to raise knowledge of obstetric danger signs little is known about the current level of practice and the influencing factors in Ethiopia. The associated problems and health risks of the knowledge are also dependent on the specific context. This study therefore aims to fill this gap by assessing the current status of birth and its complication of danger signs among pregnant women as it could provide another insight in the prevention maternal and child mortality and morbidity (4, 5, 9).

Methods

Study Design

Institution cross sectional study design was conducted from Dec 15, 2014 to Feb, 2015to assess the magnitude and factors associated with birth preparedness and complication readiness.

Source Population

All pregnant women who have ANC follow-up in Debrebirhan public health facilities.

Study Population

Pregnant women who were selected during data collections that fulfill the following inclusion and exclusion criteria were the study population.

Ethical consideration

Ethical clearance and approval was obtained from Addis continental institute of public health/ University of Gonder. The necessary permission to undertake the study was also obtained from Amhara Regional health office and Debrebirhan town health office. The researcher was value the local culture and traditions, and dealt with every participant in the study with respect and dignity.

In every situation, the established rights of research participants were protected. People was not been coerced into participating in the research, which is the fundamental of the principle of voluntary participation in research ethics.

Prospective research participants were informed about the procedures involved and gave their consent to participate using a form attached in the annex. The respondents were at least asked for an oral consent in local language and the questions asked to them were in simplified language. This research also guaranteed the participants confidentiality; the participants were also assured that identifying information would not be made available to anyone who is not directly involved in the study. The stricter standard maintained by this study was the principle of anonymity which essentially means that the participant remained anonymous throughout the study and its' reporting. Clearly, the anonymity standard is a stronger guarantee of privacy.

Results

100% (356) responded to the interview. The mean age was 25.56 ± 4.58 years. Majority of respondents, 41.6 %, were between the age group of 25 and 29 years. Most of the women 77.2% (275) were Orthodox. Majority 97.8% (348) of the women were married and most 52.3% (186) of the respondents were employed. 45.8% (One hundred sixty three had completed secondary school and above.

About 43.5% (One hundred fifty-five) of the women were primi gravida and only 15.2% of pregnant women had early ANC visit. Regarding place of delivery 92.1% (328) of decisions was made by pregnant women herself and only 6.7% (24) by husband. (Table 1)

Table-1 : Obstetric characteristics of pregnant women, attending ANC clinics in in public health facilities of Debrebirhan town, Ethiopia, 2015.

	Variable	Frequency (n=356)	Percent (%)
Gravidity	1	155	43.5
	2-4	190	53.4
	>=5	11	3.1
Parity	0	158	44.4
	1	107	30.1
	2-4	87	24.4
	>=5	4	1.1
Still birth	Yes	15	4.2
	No	341	95.8
Abortion	Yes	21	5.9
	No	335	94.1
Time of first ANC visit (in month)	<3 Month	54	15.2
	>=3 Month	302	84.8
Knowledge on BPCR	Yes	176	49.4
	No	180	50.6
Knowledge on BPCR during pregnancy	Yes	117	32.9
	No	239	67.1
Knowledge on BPCR during labor	Yes	78	21.9
	No	278	78.1
Knowledge on BPCR during post-partum	Yes	109	30.6
	No	247	69.4

A woman was considered as prepared for birth and its complication if she identified four and more components from birth preparedness complication readiness. Plan for place of delivery, saving money, plan for skilled health care provider, plan means of transportation and plan of blood donor during obstetric emergency. The score for birth preparedness and complication readiness was computed from key elements of birth preparedness and complication readiness.

Generally 53.9% with 95% CI (48.9, 59.0) of pregnant women on this study were prepared for birth and its complication. About (63.8%) of pregnant mothers were planned skilled health care provider and arrange means of transport. Majority, 93.5% identified health facility for delivery and/or for obstetric emergencies. About (68.5%) of pregnant women saved money for incurred costs of delivery and emergency if needed and only 45.5% of them plan of blood donor during obstetric emergency.

On binary logistic regression, knowledge on BPCR, educational level, planned PNC follow up, time of first ANC follow up, knowledge of danger sign during pregnancy, labor and postnatal period, information from health professionals and final decision maker to give birth were found to have statistically significant association with birth preparedness and complication readiness.

Multiple logistic regression analysis was also computed to control the possible confounder, explores the association between selected independent variables, and birth preparedness and complication readiness. The odds of birth preparedness and complication readiness were two times greater among knowledgeable when compared to not knowledgeable respondents (AOR = 2.08, 95% CI = 1.16, 3.73).

Additionally, PNC follow-up of mother was also found as a factor for birth preparedness and complication readiness. The odds of birth preparedness and complication readiness of woman who plan to follow PNC was 2.79 times higher compared with those who don't plan PNC follow-up (AOR=2.79, 95%CI=1.73, 4.48). Furthermore, the odds of birth preparedness and complication readiness were 2.06 times greater among women who have early first ANC visit when compared with women who with late ANC follow up (AOR = 2.06, 95% CI = 1.11,3.83). (Table 2).

Table 2 : Factors associated with birth preparedness and complication readiness attending ANC clinics in in public health facilities of Debrebirhan town, Ethiopia, 2015.

Variables birth Preparedness and Complication Readiness					
		Yes N (%)	No N (%)	COR (95%)	AOR (95%)
Knowledge on BPCR	Yes	116 (65.9%)	60(34.1%)	1	1
	No	76(42.2%)	104(57.8%)	2.64 (1.72,4.06)*	2.08(1.16,3.73)**
Identify BPCR during pregnancy	Yes	143(60.3%)	94(39.7%)	1	1
	No	49(41.2%)	70(58.8%)	2.17 (1.39,3.40)*	1.25 (0.64,2.46)
Identify BPCR during labor	Yes	141(62.9%)	83(37.1%)	1	1
	No	51(38.6%)	81(61.4%)	2.69(1.73,4.20)*	1.19 (0.57,2.49)
Identify BPCR during post-partum	Yes	123(63.7%)	70(36.3%)	1	1
	No	69(42.3%)	94(57.7%)	2.39 (1.56,3.67)*	1.38(0.71,2.66)
Time of first ANC	Early	37(68.5%)	17(31.5%)	1	1
	Late	155(51.3%)	147 (48.7%)	2.82 (1.24,6.42)*	2.06 (1.11,3.83)**
Planned PNC follow-up	Yes	81(70.4%)	34(29.6%)	1	1
	No	111(46.1%)	130(53.9%)	3.05(1.64,5.69)*	2.79 (1.73,4.48)**
Information from health professionals	Yes	157(59.9%)	105(40.1%)	1	1
	No	14(26.4%)	39(73.6%)	4.16 (2.15,8.05)*	1.79 (0.81,4.01)
Education	Yes	101(62.0%)	62(38.0%)	1	1
	No	66(48.9%)	69(51.1%)	1.70 (1.07,2.70)*	0.99 (0.56,1.77)
Final decision maker	Yes	187(57.0%)	141(43.0%)	1	1
	No	5(17.9%)	23(82.1%)	6.10(2.26,16.44)*	2.53 (0.79,8.09)

** P-value < 0.25 in the bivariate analysis ** P-value < 0.05 in the multivariate analysis*

Discussion

The present study investigated magnitude and factors associated with birth preparedness and complication readiness among pregnant women attending antenatal care services at public health facilities in Debrebirhan town, Amhara, Ethiopia, 2015.

This study showed that, 53.9% of the respondents were prepared for birth and its complications, which is higher than study conducted in Goba woreda Ethiopia (29.9%), Adigrat (22%), Aleta Wondo(17%), Arsi Robe(16.5%).This might be due to the difference in study period, socioeconomic characteristics, health service delivery, study area and age difference. It may also be due to the increased awareness creation done by HEWs or they may be prepared for birth and its complication without having enough knowledge. (13, 22, 27).

The most commonly mentioned elements of birth preparedness and its complication in the study were identifying place of delivery, arranging transportation, saving money which may be explained by the fact that both women and their partners may knew that money is required to facilitate referral in case of complications, planning skilled assistant and identifying institution with 24 hour emergency obstetric care. Lack of money and transportation is a barrier for seeking care as well as identifying and reaching medical facilities (8, 11). Money saved by woman or her family can pay for health services and supplies, vital for transport, or other costs. Likewise, if a woman can afford to pay for these costs, she is more likely to seek care (8). In the present study, majority of the respondents saved money for childbirth which is in line compared to a study in Adigrat (68.9%) (22).This could be due to the cultural value of the community in the study area. It is nearly comparable with study in rural Uganda, Mbarara district where majority of the respondents identified skilled providers, saved money, identified means of transport, and identify health facility (20).

Arranging transport ahead of time reduces the delay in seeking and reaching services. In this study, majority of the respondents had identified transportation ahead of childbirth which is higher compared to a study in Adigrat (24.7%) and India(21, 22).This could be due to difference in transport type and increased awareness of mothers by HEWs towards identifying transportation ahead of childbirth to health facilities.

Furthermore about 63.8% and majority of pregnant women in this study planned to deliver by assistance of skilled provider which is higher compared to study done in Aleta wondo and lower than study done in India (13, 21). This may be due to the reason that awareness is done by HEWs or the number of skilled delivery attendance is increasing.

In contrary to the practice of BPCR, in this study, the overall knowledge of pregnant women on birth preparedness and complication readiness was 49.4%. The proportion of pregnant women who were considered knowledgeable on danger signs during pregnancy, labor/child birth and post-partum period were 32.9%, 21.9% and 30.6% respectively. The implication of this finding could be women could prepare some of those BPCR components without having the knowledge of its rationale. Therefore, their

continuous practice for their preparation of birth in the future is under question because of their knowledge gap. Another explanation for this could be knowledge of BPCR is the first step in the appropriate and time referral for essential obstetric care .The more knowledge they have about the importance of BPCR the more likely they practice elements of BPCR (8,10).

Regarding some of the factors affecting birth preparedness and complication readiness, the study found knowledge, PNC follow-up, and time of first ANC visit has significant statistical association with birth preparedness and complication readiness.

There was statistically significant association between knowledge and birth preparedness and complication readiness. Those pregnant women who were knowledgeable were two times more to prepare for birth and its complication as compared with those who were not knowledgeable (AOR=2.08, 95%CI= 1.16,3.73). This is in line with Goba (AOR = 2.08, 95% CI = 1.20, 3.60). This might be related to the fact that the more knowledge on BPCR they do have the more they practice it (27).

There was also statistically significant association between birth preparedness and complication readiness of woman who plan to follow PNC and it was 2.79 times higher compared with those who don't plan PNC follow-up (AOR=2.79, 95% CI= 1.73, 4.48). This may be due to the reason that most of the complication like Severe vaginal bleeding, high grade fever, and foul smelling vaginal smelling can occur during the first 42 days after birth (9, 17).

Furthermore, first trimester ANC visit was also statistically significant and it was 2.06 times greater among women who have early first ANC visit to prepare for birth and its complications. When compared with women who had late ANC (AOR = 2.06, 95% CI = 1.13, 3.83). Time of first trimester ANC visit attendance was low (15.5%) and this figure is lower than the study conducted in Arsi robe and India (21), the reason for this disparity may be due the reason that it may be due to knowledge gap how much important early initiation of visiting ANC clinic or they may not supported by their husband.

The early they come to visit ANC clinic the more they know the importance of BPCR and the more they will practice it. This can be best explained by the fact that ANC is more effective when received earlier in the pregnancy and for the case of ANC follow up, if the women have ANC follow up, they could accept advise and health information from health professionals.

So that helps them be prepared for birth and its complication. ANC until the end of second trimester were more likely to attend home delivery than those came earlier. This can be best explained by the fact that ANC is more effective when received earlier in the pregnancy (7, 8, 9)

Conclusions

- The finding if this study showed that it is not enough to bring positive change for Preparedness for birth and its complication.
- Knowledge on BPCR, planned PNC follow-up, as well as early ANC follow up were independent factors of birth preparedness and complication readiness.

Recommendations

Knowledge was found to be one of the factors of BPCR. Therefore, Debrebirhan health office in collaboration with other stake holders such as Debrebirhan education office should further strengthen their effort to empower women with education.

Early ANC follow up and those pregnant women who planned PNC were found to have statistically significant association with birth preparedness and complication readiness. Therefore, health professionals during antenatal care and delivery should give due emphasis on birth preparedness and complication readiness plan to improve access to skilled and emergency obstetric care.

Finally, if other studies to be conducted that is triangulated and improve the gaps that fill this study.

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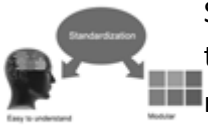

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3. Submission of Manuscripts,

4. Manuscript's Category,

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18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

Segment Draft and Final Research Paper: You have to strictly follow the template of research paper. If it is not done your paper may get rejected.

- The **major constraint** is that you must independently make all content, tables, graphs, and facts that are offered in the paper. You must write each part of the paper wholly on your own. The Peer-reviewers need to identify your own perceptive of the concepts in your own terms. NEVER extract straight from any foundation, and never rephrase someone else's analysis.

- Do not give permission to anyone else to "PROOFREAD" your manuscript.

- Methods to avoid Plagiarism is applied by us on every paper, if found guilty, you will be blacklisted by all of our collaborated research groups, your institution will be informed for this and strict legal actions will be taken immediately.)
- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.

Criterion for Grading a Research Paper (Compilation) by Global Journals Inc. (US)

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals Inc. (US).

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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