

CROSS SECTIONAL COMPARATIVE STUDY BETWEEN WOMEN ADMITTED FOR RUPTURED ECTOPIC PREGNANCY AND THOSE WHO PRESENTED AT THE ANTENATAL BOOKING CLINIC AT A SECONDARY HOSPITAL IN SOUTHWEST NIGERIA

Adepiti C.A¹, Ajenifuja K.O², Ikuomola A.A¹, Adeboye S.G.B¹

¹*State Specialist Hospital, Akure.*

²*Obafemi Awolowo University Teaching Hospital, Complex, Ile-Ife.*

ABSTRACT

Background: Ectopic pregnancy is a major gynaecological emergency; it is a major contributor to the high maternal mortality in Nigeria. Most patients in developing countries often present with rupture due to delay in seeking medical intervention. With ruptured ectopic pregnancy, treatment is salpingectomy leading to reduced fertility. In most parts of the world, especially, in developing countries the incidence of ectopic pregnancy has increased in the last three decades

Objective: To compare the socio-demographic, sexual and reproductive factors among patients managed for ectopic pregnancy and pregnant women attending the ante-natal care in a secondary care centre.

Method: In this comparative study, 102 patients who presented with ruptured ectopic pregnancy over a period of twelve months to the State Specialist Hospital, Akure were compared with 100 randomly selected pregnant women in the second trimester (control) from the booking clinic of the same hospital.

Results: There were 2376 live births and 1058 gynaecological ward admissions during the period out of which 102 were ectopic pregnancies. The incidence of ruptured ectopic pregnancy in this study was 4.3% or 4293 per 100,000 live births and it accounted for 9.6% of all gynaecological admissions. Patients in both arms were similar in age, marital status and parity but different in socio-economic status. More women in the control group belonged to the high socio-economic class. The odds ratio of developing ectopic pregnancy was highest for history of previous use of IUCD (7.7955 95% CI 1.7233 to 35.2640) and lowest for previous pelvic surgery (0.4160 95% CI 0.2159 to 0.8016).

Conclusion: Ectopic pregnancy has a high incidence in developing countries and is a major indication for admission to the gynaecological ward. Major risk factor for ectopic pregnancy in this study was previous use of IUCD OR 7.7955 95% CI 1.72 to 35.26

Keywords: Ruptured ectopic pregnancy, booked patients, risk factors, odd ratio.

INTRODUCTION

Ruptured ectopic pregnancy is a major gynaecological emergency, accounting for significant number of gynaecological ward admission in many developing countries. It is a reproductive failure in the index pregnancy with a

Correspondence: Adepiti C.A

Department of Obstetrics and Gynaecology

State Specialist Hospital, Akure

akinfolarindepiti@yahoo.co.uk

recurrent rate of up to 7-15%¹. After a salpingectomy, the chances of future pregnancy are only about 40-60%². This may lead to marital disharmony in sub-Saharan Africa, where a high premium is placed on childbirth.

During the last three decades there has been a global increase in the incidence of ectopic pregnancy^{3, 4, 5} with regional variations. Incidence, morbidity and mortality are more in developing countries. Due to increase and inadequate treatment of sexually transmitted infection and late presentation. In the United States of America, ectopic pregnancy constitutes about 1.97% of all pregnancies³, in the United Kingdom it is 1.24% of all mature pregnancies⁴ and in Ghana it is 2.3-4.1% of all deliveries⁶ whereas in Nigeria it is 0.47-2.7% of total live births⁷⁻⁹.

The global increase in incidence has been attributed to the increase in the prevalence of sexually transmitted infections particularly the resurgence of Chlamydia infection, increased smoking rates in reproductive age women in developing countries, use of Intra-uterine devices, increased incidence of unsafe abortions which is often complicated by pelvic infections particularly in the developing nations. Other risk factors for ectopic pregnancy are advances in assisted reproductive technology, tubal and sterilization surgeries⁴.

Unlike the developed nations of the world where early diagnosis and management is the norm, about 80% of patients in many parts of developing countries present late with ruptured ectopic pregnancy^{8,9}. Certain risk factors have always been known to predispose to ectopic pregnancy and a lot of local studies have shown that previous induced abortion and sexually transmitted infections are the two leading causes of ectopic pregnancy in our sub-region^{10,11,12}.

The high number of patients seen on weekly basis with ruptured ectopic pregnancy in our hospital

motivated the need to compare the socio-demographic and documented risk factors for ectopic pregnancy between patients that presented with ruptured ectopic pregnancy and women seen at the antenatal booking clinics during this the same period.

MATERIALS AND METHODS

In this comparative cross-sectional study, we compared the socio-demographic characteristics and the established risk factors between patients that presented with ruptured ectopic pregnancy and those with intra-uterine pregnancy (control) in our hospital within the same period.

A structured questionnaire was administered to all the 102 consecutive patients that presented with ruptured ectopic pregnancy at the State Specialist Hospital Akure between June, 2012 and May, 2013. This questionnaire was also administered to 100 pregnant women who were in the second trimester at the antenatal booking clinic (control group). The data obtained was analyzed for age, marital status, parity, socioeconomic status and the established risk factors for developing ectopic pregnancy. Logistic regression was conducted to examine for factors that contribute to increased risk of ectopic pregnancy. Ectopic and ongoing intrauterine pregnancy being dependent variable, while past history of use intra-uterine copper device, previous history of ectopic pregnancy, history of manual removal of placental, history of sexually transmitted infections, history of infertility, prolonged rupture of fetal membranes, induced abortion, history of use of injectable hormonal contraceptive and previous pelvic surgery were the independent variables.

RESULTS

There were 2376 live births, 102 cases of ruptured ectopic pregnancy and 1058 gynaecological ward admissions during the study period. The overall

incidence of ruptured ectopic pregnancy in this study was 4.3% of pregnancy and this constituted 9.6% of all gynaecological admissions.

There were no statistical difference between the age, marital status and parity of the patients with ruptured ectopic and the control (table 1). However, the incidence of ectopic pregnancy was more among women in the low socio-economic group (64%) compared to the 13.8% among women in the high socio-economic class (table 2)

Among the established risk factors for ectopic pregnancy, logistic regression showed that the odd of developing ectopic pregnancy was 8 times for women with history of previous use of intrauterine contraceptive device (IUCD) (Odds ratio 7.7955 at 95% CI 1.72 to 35.26) compared with women who never used IUCD. The odds ratio of developing ectopic pregnancy based on the established risk factors in this study in decreasing order were past history of use intra-uterine copper device, previous history of ectopic pregnancy, history of manual removal of placental, history of sexually transmitted infections, history of infertility, prolonged rupture of fetal membranes, induced abortion, history of use of injectable hormonal contraceptive and previous pelvic surgery. There were no identifiable risk factors in some patients and some also had more than one risk factor in both arms (table 3).

Table 1: Demographic Characteristics Of Patients

AGE	PARITY			MARRITAL STATUS		
	Ruptured	Ruptured	Control	Ruptured	Control	
Age(yrs) Control		0	38	34		
< 20	2	0	1	16	24	Single
20-29	50	42	2	28	26	Married
30-39	48	56	3	8	10	
=40	2	2	=4	12	6	
Total	102	100	Total	102	100	Total

Table 2: Socio-Economic Status

Ruptured Ectopic Group			Control Group		
Status	Number	Percentage	Status	Number	Percentage
Low	88	86.2	Low	36	36
High	14	13.8	High	64	64
Total	102	100	Total	100	100

Table 3: Risk Factor Analysis

Risk Factors	Ruptured Ectopic Group	Control Group (100)	Odds Ratio
-History of past use of IUCD	102		7.7955 (95% CI 1.7233 to 35.2640)
-History of previous Ectopic Pregnancy	14	2	5.3261 (95% CI 1.1365 to 24.9596)
-History of Manual removal of Placenta	10	2	2.3370 (95% CI 0.7065 to 7.7298)
-History of STI		4	2.0167 (95% CI 0.9377 to 4.3372)
-History of Infertility	10	12	1.9512 (95% CI 0.8601 to 4.4268)
-History of Prolonged Rupture of Fetal Membranes	20		0.7971 (95% CI 0.3278 to 1.9384)
-History of previous induced Abortion	10	12	0.5476 (95% CI 0.3132 to 0.9575)
-History of past use of injectable Hormonal contraceptive	46	60	0.4694 (95% CI 0.1367 to 1.6115)
-Previous Pelvic Surgery	4	34	0.4160 (95% CI 0.2159 to 0.8016)
No identifiable Risk Factor	18	22	1.7701 (95% CI 0.9910 to 3.1617)
>One Risk Factor	14	30	
	44		

DISCUSSION

The incidence of ruptured ectopic pregnancy in this study was 4.3% or 4293 per 100,000 live births. This is particularly higher than locally reported incidences of 1.31% in Jos¹⁰, 1.68% in Benin¹¹, 1.4% in Ilorin¹². The high incidence seen in this study implies that ruptured ectopic pregnancy is still an important reproductive and public health problem in our area of practice. The incidence of ectopic pregnancy has been reported to have increased 2-4folds in advanced nations for reasons of resurgence of Chlamydia infections, advances in assisted reproduction, tubal surgeries, early

diagnosis of ectopic pregnancies that would have otherwise resolved undiagnosed.^{3, 4, 13}. The higher incidence in developing countries has been attributed to infections complicating unsafe abortions. In our environment where there are restrictive abortion laws, most cases of unwanted pregnancies are terminated clandestinely often in unhygienic environment¹⁴. Puerperal infections have also been implicated in the increasing incidence of ectopic pregnancy in developing countries due to the fact that few deliveries in Nigeria are attended by skilled attendants¹⁵. The ever increasing cases of sexually transmitted infections that are most times poorly managed also account for a sizeable number of tubal damage that result in ectopic pregnancy^{10, 11, 12}.

In this study among all the established risk factors for ectopic pregnancy, history of previous use of IUCD has the highest risk of predisposition to ectopic pregnancy (odds ratio 7.7955 at 95% CI 1.7233 to 35.2640). When in situ, IUCD is known to protect against intra and extra-uterine pregnancies. However, when the IUCD fails it is known to carry a 6 to 10 fold risk of ectopic pregnancy in users¹⁶. History of previous use of IUCD has been reported to increase the risk of ectopic pregnancy and it has been documented as the only contraceptive method associated with an increased risk of ectopic pregnancy after discontinuation^{17, 18}. The reason for the increased risk of ectopic pregnancy with IUCD usage may not be unconnected with increased risk of ascending genital tract infections with the IUCD in-situ leading to tubal damage that eventually result in ectopic pregnancy. This is particularly likely because of the high incidence of sexually transmitted infection in our sub-region^{19, 20}.

Previous ectopic pregnancy ranked second (odds ratio 5.3261 (95% CI 1.14 to 24.96), this might be because whatever predisposed the first tube to ectopic gestation equally predisposed the other tube.

The other risk factors in decreasing order of risk of predisposition are manual removal of placenta (odds ratio 2.3370 (95% CI 0.71 to 7.73), history of sexually transmitted infections (odds ratio 2.02 (95% CI 0.94 to 4.34), history of infertility (odds ratio 1.95 (95% CI 0.86 to 4.43), prolonged rupture of fetal membranes (odds ratio 0.7971 (95% CI 0.33 to 1.94), induced abortion (odds ratio 0.55 (95% CI 0.31 to 0.96), history of previous use of injectable hormonal contraceptive and previous pelvic surgery (odds ratio 0.42 (95% CI 0.22 to 0.80)). Most local studies have incriminated induced abortion as the main predisposing factor to developing ectopic pregnancy; particularly in case reviews^{11, 12, 13}. However, this comparative study has shown that induced abortion taken in isolation is not the commonest risk factor for ectopic pregnancy. More women in the control group (60) had more induced abortions compared to those in ruptured ectopic group (46) (Table 3). The most likely explanation for this is perhaps because since most women in the control group belong to the high socio-economic class, they would have procured their own abortions at clinics run by qualified personnel albeit illegally compared to majority of women in the ectopic group who belong to the low socio-economic class who might have had their abortions performed in unsafe environment run by less qualified personnel. In some patients in both arms of the study, there were no identifiable risk factors and some also had more than one risk factor.

CONCLUSION

Ruptured ectopic pregnancy is an important reproductive health problem in developing nations like ours with grave consequences for women. History of previous use of IUCD was shown in this study as the strongest predisposing risk factor for ectopic pregnancy. Therefore, improving the socio-

economic status of women and proper selection of patients for IUCD in family planning clinics might help reduce the menace of the problem.

REFERENCES

1. Cunningham FG, MacDonald PC, Nornan FG. Ectopic pregnancy: In Williams Obstetrics 18th Edition; Appleton and Lanse, 1989; 511-532.
2. Bermoux A, Job-Spira N, Germain E et al. fertility outcome after ectopic pregnancy and use of intra-uterine device at the time of index ectopic pregnancy. *Human Reprod.* 2000; 15: 1173-1177.
3. Centre for Disease Control and Prevention: Ectopic pregnancy-United States, 1990-1992. *MMWR.* 1995; 1:46..
4. Rajkhowa M, Glass MR, Rutherford AJ et al. Trends in the incidence of ectopic pregnancy in England and Wales from 1966-1996. *BJOG* 2000; 107(3): 369-74.
5. Boyer J, Coste J, Shojaei T et al. Risk factors for ectopic pregnancy: A comprehensive analysis based on a large case-control, population-based study in France. *American Journal of Epidemiol.* 2003; 157 (3): 185-194.
6. Obed SA, Wilson JB, Klufio CA. Tubal pregnancy: A review of 404 cases. *Ghana Med. Journal.* 1975; 14:232.
7. Igberase GO, Ebeigbe PN, Igbekoyi OF et al. Ectopic pregnancy: an 11-year review in a tertiary centre in the Niger Delta. *Trop Doct.* 2005; 35(3): 175-177.
8. Makinde OO, Ogunniyi SO. Ectopic pregnancy in a defined Nigerian population *Int. J Gynaecol Obstet* .1990; 33(3): 239-241.
9. Arnorlu R, Oluwole A, Abudu O et al. Risk factors for ectopic pregnancy in Lagos, Nigeria. *Acta Obstet Gynaecol Scand.* 2005; 84(2): 184-188.
10. Olarewaju IAO, Ujah JA, Otubu M. Trends of ectopic pregnancy at Jos University Teaching Hospital, Jos Nigeria. *Nigerian Med. Journal.* 1994; 2(26): 57-60.
11. Gharoro EP, Igbafe AA. Ectopic pregnancy revisited in Benin, Nigeria: analysis of 152 cases . *Acta Obstet Gynaecol Scand* 2002; 81:1130-1143.
12. Aboyeji AP. Trends in ectopic pregnancy in Ilorin, Nigeria: *Nigerian Med Pract.* 2000;(38):21-23.
13. Egger M, Low N, Smith GD, et al. Screening for Chlamydia infections and the risk of ectopic pregnancy in a county in Sweden: ecological analysis. *BMJ of Obstet and Gynaecol.* 1998; 316:1776–1780.
14. Henshaw SK, Adewole I, Singh S, et al. Severity and cost of unsafe abortion complications treated in Nigeria Hospitals. *International Family Planning Perspectives.* 2008; 34(1): 40-50.
15. Ezeanochie MC, Olagbuji BN, Agholor KN and Okonofua FE. Attaining MDG5 in Northern Nigeria: Need to focus on skilled birth attendance. *African Journal of Reproductive Health* 2010; 14(2): 9-11.
16. Rossing MA, Daling JR, Voigt LF, Stergachis AS and Weiss NS (1993). Current use of an intrauterine device and risk of tubal pregnancy. *Epidemiology.* 1993; 4:252–258.
17. Mol BW, Ankum NM, Bossuyt PM et al. Contraception and the risk of ectopic pregnancy: A meta-analysis. *Contraception.* 1995; 52(6):337-341.
18. Xiong X, Buekens P, Wollast E. IUD use and the risk of ectopic pregnancy: a meta-

- analysis of case-control studies.
Contraception.1995; 52(1): 23-34.
19. Mmari KN, Oseni O, Fatusi A.O. STI Treatment-seeking behaviour Among Youths in Nigeria: Are There Gender Differences. *International Perspectives on Sexual and Reproductive Health*. 2010; 36(2): 72-79.
20. Ogunbanjo BO, Sexually transmitted diseases in Nigeria: a review of the present situation, *West African Journal of Medicine*, 1989; 8(1):42–49.