

INCIDENCE OF ECTOPIC PREGNANCY IN CALABAR, NIGERIA: TWO HALVES OF THE LAST DECADE COMPARED

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(Received 13 March, 2008; Revision Accepted 22 September, 2008)

ABSTRACT

Reports of a rising incidence of ectopic pregnancy (EP) in the country and beyond prompted this study to determine the incidence in Calabar over two time frames. Information from ward registers and case notes of EP patients who presented to the University of Calabar Teaching Hospital from 1991 to 1995 were analyzed and compared with records of those who presented from 1996 to 2000. In the second half of the study period, the incidence was 3.30 per 100 deliveries, significantly higher than 2.19% in the first ($p = 0.0008$). The mean age of EP patients was 26.2 (sd = 5.38), significantly lower than 28.8 (sd = 5.99) for women who delivered in the same period ($p < 0.01$), while the mean parity was 2.2 (sd = 2.15) significantly higher than 1.7 (sd = 1.90) for women who delivered in the same period ($p = 0.01$). The incidence was higher in the younger age groups ($p = 0.000$) with the highest of 5.81% recorded by age group 20-24. Conversely, it rose with parity (0.00002) to a peak of 5.03% at para 4. There was also a rise in their mean parity from 1.9 (sd = 2.08) in the first half to 2.4 (sd = 2.05) in the second ($p < 0.05$) and a rise in the prevalence of pelvic adhesions from 38.3% to 68.9% ($p = 0.00$). Rates of other documented risk factors were not significantly different in the two halves of the study ($p > 0.05$). The incidence of EP appears to be rising in Calabar and puerperal infections may be important in the rise. Population-based prospective studies are necessary to confirm the findings.

KEYWORDS: Ectopic Pregnancy, Calabar, Nigeria

INTRODUCTION

The incidence of ectopic pregnancy (EP) has continued to generate a lot of interest around the globe because of the varied morbidities and mortality associated with the condition. It is known to vary widely between regions and countries though the use of different denominators makes comparison difficult (1). In the United Kingdom (UK) and United States of America (USA), current countrywide population-based estimates on live births are 1.6% and 2.2% respectively (Campbell and Monga, 2000). In Yaounde, Cameroun, a population based study documented an incidence of 0.8% per 100 live births (Leke, Goyaux et al, 2004). In Asia, where

incidence is often on total deliveries, hospital based rates of 0.6 to 1.3% have been reported (Arup et al, 2007, Tsai et al, 1995, Khaleeque et al, 2001). Hospital based studies in Africa have documented rates on total deliveries of 1.5% and 3.29% in Guinea (Thonneau et al, 2002) and Ghana (Obed, 2006) respectively; while in Nigeria, the reported rates range from 0.48% to 4.38% (Makinde and Ogunniyi, 1990, Aboyeji et al, 2002, Gharoro and Igbafe, 2002, Ilesanmi and Sobowale, 1992, Ola et al, 1999).

Many countries have noted a rise in the incidence in recent decades, while some others such as the Scandinavian countries are currently recording a declining trend (Thonneau et al, 2002). In England and Wales, there was a five-

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fold increase from 0.3% in 1966 to 1.6% in 1996 (Rajkhowa et al. 2000), while in Ireland; a four-fold increase from 1.8 in 1986 to 8.3 per 1000 pregnancies in 1996 was reported (Ong and Wingfield, 1999). There was also a rise in the USA from 1.9% in 1981 to 2.3% in 1991 (Saraiya et al, 1999). A curious situation exists in Nigeria. While one study has suggested a rising incidence (Aboyeji et al, 2002), another study in Ibadan, Nigeria showed the incidence to be stable (Ilesanmi and Sobowale, 1992) and yet another study in Enugu, Nigeria reported a decline (Egwatu and Ozumba, 1987). Differences in local epidemiological factors may account for these variations. This study assesses the incidence of EP in Calabar over two time frames. In the event of finding a significant change, it will also attempt to uncover the underlying local epidemiological factors in operation.

METHODS

A retrospective study of records on EP patients admitted in the University of Calabar Teaching Hospital (UCTH) from January 1991 to December 2000 was carried out. The annual incidence was calculated on deliveries. Age and parity of EP patients and those of women who delivered in the hospital during the same period were obtained from ward registers. Case notes of EP patients were scrutinized for risk factors for EP and for intra-operative findings of pelvic adhesions and other stigmata of previous pelvic infection. The incidence of EP and the prevalence of risk factors in the two halves of the study period were compared using simple percentages, Chi square and Students t test.

RESULTS

The total number of ectopic gestations and births during the study period were 280 and

10,210 respectively, giving an incidence of 2.74%. There were 112 EP patients in the first half of the study period and 5122 deliveries, giving an incidence of 2.19%. The incidence in the second half was 3.30%. The difference was statistically significant ($p = 0.0008$). Figure 1 shows that there was a rise in the annual incidence of EP over the years.

Table 1 shows that EP was more common in the younger age groups with the highest incidence of 5.81% recorded in age group 20-24. The mean age of EP patients was 26.2 (sd = 5.38), significantly lower than 28.8 (sd = 5.99) for those who delivered during the same period ($p < 0.01$). Multiparous (parity >1) EP patients were 53.2%; nulliparous, 31.4% and primiparous, 15.4%. Also revealed on Table 1, is that the incidence increased from 1.78 among para 1 to 5.03 among para 4 ($p = 0.00002$). The mean parity of EP patients was 2.2 (sd = 2.15), significantly higher than 1.7 (sd = 1.90) for women who delivered during the same period ($p < 0.01$). The mean parity for the EP patients rose from 1.9 (sd = 2.08) in the first half to 2.4 (sd = 2.05) in the second ($p < 0.05$). Conversely, there was a drop in mean abortion from 0.72 (sd = 0.98) to 0.57 (sd = 0.87) though the difference was not statistically significant ($p > 0.05$).

Information in 64 case notes were too scanty, therefore subsequent analysis of risk factors was based on 216 case notes. This showed that 35.6% had at least one previous induced abortion, 11.6% had at least one spontaneous abortion and 9.7% had at least one previous abdominal or pelvic surgery. The rate of report of these and other risk factors as documented on table 2 were not different in the two halves of the study period. There was however a significant rise in patients with pelvic adhesions from 38.3% in the first half to 68.9% in the second ($p = 0.000$). These adhesions were seen in 120 (55.6%) patients.

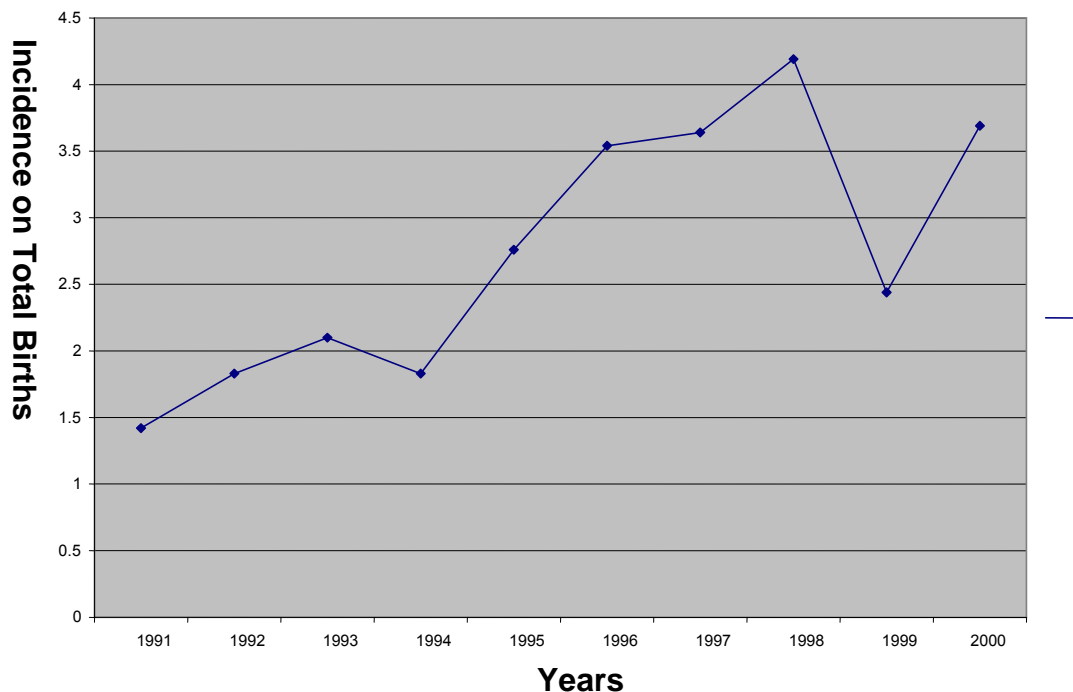


Figure 1: Trend in the Annual Incidence of Ectopic Pregnancy

Table I Incidence of Ectopic Pregnancy across Age and Parity

Parameters	Total deliveries		Ectopic pregnancies		Incidence Per 100 Births
Age (Years)					
<20	719	(7.0)	24	(8.6)	3.34
20-24	1650	(16.2)	96	(34.2)	5.82
25-29	3364	(32.9)	85	(30.4)	2.53
30-34	2493	(24.4)	59	(21.1)	2.37
35-39	1717	(16.8)	11	(3.9)	0.64
>39	267	(2.6)	5	(1.8)	1.87
Total	10,210	(100)	280	(100)	2.74
					$\chi^2=84.7df=5 p=0.000$
Parity					
0	3572	(35.0)	88	(31.4)	2.46
1	2413	(23.6)	43	(15.4)	1.78
2	1807	(17.7)	47	(16.8)	2.60
3	1028	(10.1)	39	(13.9)	3.79
4	676	(6.6)	34	(12.1)	5.03
≥5	714	(7.0)	29	(10.4)	4.06
Total	10,210	(100)	280	(100)	2.74
					$(\chi^2 = 29.71 df = 5, p = 0.00002).$

Table 2 Predisposing Factors to Ectopic Pregnancy

Factors	1991-95 (94)	1996-2000 (122)	Total (216)	X ²
Induced abortion	32 (34.0)	45 (36.9)	77 (35.6)	0.19 ns
Spontaneous abortion	11 (11.7)	14 (11.5)	25 (11.6)	0.003 ns
Abdominal/pelvic surgery	10 (10.6)	11 (9.0)	21 (9.7)	0.16 ns
Previous infertility	5 (5.3)	7 (5.7)	12 (5.5)	0.02 ns
Intrauterine contraceptive device	5 (5.3)	7 (5.7)	12 (5.5)	0.02 ns
Previous ectopic gestation	5 (5.3)	6 (4.9)	11 (5.0)	0.02 ns
Pelvic inflammatory disease	4 (4.3)	5 (4.1)	9 (4.2)	0.003 ns

ns = not significant P > 0.05

DISCUSSION

With a significant increase in incidence from 2.19% to 3.30% in the second half of the study period, EP remains a major gynaecological problem in Calabar. Similar high rates are common in Nigeria and many other black societies suggesting that racial or hereditary factors are involved in its aetiology (Kadar, 1983). A rising trend has also been observed in Ilorin, Nigeria (Aboyeji, 2000) as in other African countries and the western world (Leke et al, 2004, Ong and Wingfield, 1999, Saraiya et al, 1999). Speculations abound to explain this trend. Studies have implicated improved diagnostics, increasing prevalence of sexually transmitted infections, increasing use of IUCD, infertility and its treatment, previous abortions and abdominal/pelvic surgeries among others (Thonneau et al, 2002, Makinen et al, 1989, Chavkin, 1982).

A doubling of the prevalence of pelvic adhesions was also noted in the second 5 years suggesting that salpingitis played a key role in the incidence rise. This macroscopic evidence of earlier pelvic inflammation was seen in 55.6%, a high rate when compared to 13.5% recorded in Ibadan (Ilesanmi, 1992), but similar to 54.9% recorded in Ilorin (Abdul, 2000) and 55% recorded in Lagos (Ola, 1999). Some authors have expressed the view that salpingitis as a consequence of induced abortion is a major aetiological factor in the high incidence of EP in Nigeria (Gharoro and Igbafe 2002, Oronsaye, 1979, Abdul, 2000). In some western countries, the chance that an abortion will result in ectopic pregnancy is negligible (Howie, 1995). Case-controlled studies in Greece have however demonstrated that it does in that country. The relative risk increases from 1.3 after one abortion to 2.6 after a second with a five-fold increase in

these risks if incomplete or complicated by sepsis (DeCherney and Seifer, 1991). The fact that no patient had a past history of post-abort sepsis does not rule out this complication considering that subclinical pelvic infections often pass unnoticed. However, like the other documented risk factors, abortion was unlikely to be responsible for the rise since there was no significant difference in the mean abortion rate in the two halves of the study.

At variance with many western reports, the study showed that EP is a disease of the young and multiparous in Calabar. Not only were the women significantly younger and of higher parity than those who delivered during the period, the incidence tended to rise with parity as it dropped with age. Studies in western countries report that EP is higher with advancing age and among women of low parity (Kadar, 1983, Chavkin, 1982). While most series in the country are in agreement that in Nigeria, EP is a disease of young women; differences exist concerning its relationship with parity. Some studies support the view that it is a disease of the lower parities (Aboyeji, 2002, Abdul, 2000); others report that parity has no relationship with the incidence (Arnolu et al, 2005). However the studies from Lagos (Ola et al, 1999) and Ibadan (Ilesanmi, 1992) reveal a similar relationship with parity as observed in this study, with a peak incidence among the para 4 and para 5 respectively. Oronsanye (1979) had earlier noted in his study on reproductive performance among EP patients in Benin that majority of the women were multiparous and of good fertility prior to having an EP. These all go to suggest that at least in the southern part of the country; it is a disease of multiparous women.

Taking into consideration that the mean parity in the second half of the study was significantly higher than in the first and that the

incidence of EP rose with parity; it seems that puerperal infections played some role in the rise in incidence. As obtains with abortions; the more the deliveries, the higher the risk of exposure to puerperal pelvic infections. Increasing episodes of pelvic infections would heighten the risk of EP by worsening tubal damage (Decherney and Seifer, 1991). This is especially so when the deliveries are conducted in unsanitary settings by unskilled persons. A recent comprehensive national survey of health facilities in 12 randomly selected states in the country reported that the vast majority of deliveries occur under unsafe conditions with only 13.9% of estimated annual births taking place in health facilities (Federal Ministry of Health/UNDP, 2003). Cross River State (where the study was conducted) recorded 9.4%. Unfortunately, puerperal infections were not taken into consideration when the patients' past obstetric histories were taken as the case notes revealed. Besides; as is common with pelvic infections, many of these were probably subclinical and the minor upsets felt could easily have been attributed to normal afterbirth symptoms and ignored by the patients.

CONCLUSION

The results of this study suggest that there has been a rise in the incidence of EP in Calabar. Puerperal infections may be important in the rise. Taking into cognizance the draw backs of a retrospective study and possible confounding variables, these findings do not in any way invalidate the role of PID and unsafe abortion in the aetiology of EP in this environment. It rather calls for population-based studies to confirm the rising incidence and further prospective studies to determine the exact cause of the rise with a broadening of horizon to include the possibility of puerperal pelvic infections.

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