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Original Research Article

Risk factors of ectopic pregnancy: a study in a tertiary care centre

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ABSTRACT

Background: Over the years, there has been a considerable rise in the incidence of ectopic pregnancy. This study was undertaken to identify the risk factors that contribute to this condition, so that immediate action can be taken so as to save the mother.
Methods: 62 women, in their first trimester of pregnancy who were diagnosed with ectopic pregnancy were included in the study. Demographic details, clinical and obstetric details were taken from all the patients. Ultrasound was performed to confirm the ectopic pregnancy.
Results: Out of the 62 patients, most of them with ectopic pregnancy were found to be in the 26-30 (40.3%) year's age group. Smoking, whether active or passive was observed in nearly 42% of the cases. The mean gravid status among the women was 3, with 34 live births. 21 of them had induced abortions and 4 were spontaneous. PID was observed in 12 patients (19.4%), 17.7% were IUD users.
Conclusions: Risk factors such as previous ectopic pregnancy, use of contraceptives, infertility, PID, abortion as well as increased maternal age aid in the early detection of ectopic pregnancy in women resulting in proper and timely treatment.

Keywords: Ectopic pregnancy, Incidence, Risk factors

INTRODUCTION

Ectopic pregnancy is one of the major health problem in women of child bearing age.[1] It occurs when the blastocyst implants outside the endometrial cavity and not within.[2] It is one of the major cause of maternal mortality and is estimated to be around 10%. It is said to occur in about 1-2% of all pregnencies.[3,4] Over the years, there has been a considerable rise in the incidence of ectopic pregnancy.[5] The potential risk factors which lead to ectopic pregnancy are history of previous ectopic pregnancy, intrauterine device usage, previous pelvic surgery, history of pelvic inflammatory disease (PID), or induced ovulation. Smoking, either by the expectant mother or by the spouse or family members (passive), could also be a probable cause.[6-8] These may result in tubal damage or infertility. However, there have been very few studies analyzing the risk factors that contribute to ectopic pregnancy especially in India. Hence, this study was undertaken to identify the risk factors that contribute to this condition, so that immediate action can be taken so as to save the mother.

METHODS

This study was performed in the Department of Gynecology at Mallareddy Institute of Medical sciences from Aug 2014 to Jan 2017. 62 women, in their first

trimester of pregnancy who were diagnosed with ectopic pregnancy were included in the study. 121 healthy pregnant women, also in their first trimester were included into the study as controls.

The basic demographic details such as age, weight, height, body mass index, history of smoking etc were taken. Clinical examination and history such as parity, earlier obstetric history, abortions and use of contraceptives were also noted.

Earlier surgeries, tubal ligation, tubal damage, interval of the first pregnancy and any infectious disease information such as presence of PID were also taken in detail. The extra uterine or intrauterine state of the fetus was confirmed by ultrasound.

Statistical analysis

The statistical analysis performed was student t- test on Sigmaplot version 13.

RESULTS

Out of the 62 patients, most of them with ectopic pregnancy were found to be in the 26-30 (40.3%) year's age group, followed by 21-25 years, which are the most common reproductive age group. The same was the case in the controls, though, there were more number of women in the 21-25 age group also.

Table 1: Demographic details of the patients.

Parameter	Patients (62)	Controls (121)
Age		
<20 yrs	8	12
21-25	19	46
26-30	25 (40.3%)	49
31-35	9	11
>36	1	3
BMI	24.4±3.1	23.7±2.8
Smoking		
Active	3 (4.8%)	6
Passive	23 (37.1%)	49
Non-smokers	36	66
Education level		
Illiterate	27	52
Upto 8th	24	41
Upto 12th	08	24
>12	3	4
Parity		
0	13	78
1	45	36
≥2	4	7

The BMI among the two groups was not significantly different in both the groups. Most of the patients were non-smokers, though in some of them, the spouse was a smoker, which lead to the patient being exposed for long time to cigarette/bidi smoke. Most of the patients were either illiterate or had an education of only up to 8th standard (Table 1).

The most common location of the ectopic pregnancy among the women was in the ampullary region (54.8%), followed by fimbrial region (22.6%) (Figure 1).

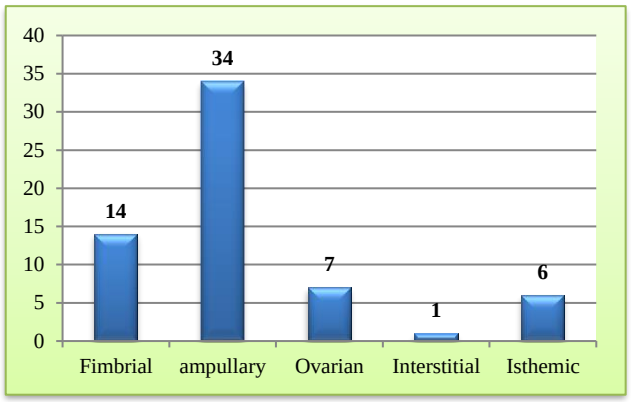

Figure 1: Location of ectopic pregnancy.

The mean gravid status among the women was 3, with 34 live births. 21 of them had induced abortions and 4 were spontaneous.

Surgery, whether abdominal or pelvic were seen in 16 cases, out of which 13 were laparotomy and 3 were appendectomy. 9 patients had an earlier history of ectopic pregnancy,29 of them had tubal ligation and 9 had tubal damage (Table 2).

Table 2: Obstetric history.

History	Number	Percent
Gravidity (mean)	3	4.8
Live birth	34	54.8
Abortions	4	6.5
Induced abortions	21	33.9
Abdominal/Pelvic surgery		
Laparotomy	13	21
Appendectomy	3	4.8
Ectopic pregnancy	9	14.5
Tubal damage	9	14.5
Tubal surgery	29	46.8

The interval of the marriage and the first pregnancy was 33 weeks in the study group, while it was 20.7 weeks in the control group.

In most of the patients there was no use of any contraceptive methods, while 11 of them were IUD users. PID was observed in 12 patients (19.4%) with ectopic pregnancy, which was statistically significant to the incidence in the controls which was 4.1% (Table 3).

Table 3: Association between ectopic pregnancy and sexual history.

First pregnancy interval	33.6±8.34	20.7±4.1
Contraceptive methods used		
IUD	11	13
Condoms	5	43
Oral contraceptives	4	9
Other	8	8
None	34	48
PID	12	5
Infertility		
Primary	9	2
Secondary	5	1
None	48	118

DISCUSSION

With the development of newer methods of management and treatment of ectopic pregnancy, the incidence of this condition is slowly decreasing. However, presence of some of the risk factors makes it easier to detect the condition, though their absence does not rule it out either.

The mean age in the present study in the women with ectopic pregnancy was 27.8 years, with the predominant age grouping 26-30 years. In a study by Bhavna et al, the mean age of the patients was 28.72 years, which was in concordance with the present study.[9] Similar results were obtained in other studies like Kopani et al, who reported 30.38 years and Anorlu et al who reported 27.8 years.[10,11] However, there were studies with conflicting results, to ascertain the role of age on this condition.[6]

Smoking was a risk factor observed, with passive smoking contributing to the major part. In the present study, smoking, whether active or passive was observed in nearly 42% of the cases. Smoking was attributed as one of the risk factors resulting in ectopic pregnancy in 38.3% cases in a study by Handler et al and 58.5% of the cases by Bouyer et al.[12,6]

Most of the patients were multigravidae, with the mean gravid status being 3. In the study by Bhavna et al, the multigravidae status was seen in more than 80% of the cases and 81.7% in a study by Panchal et al, which was in agreement with present study.[9,13]

The most common location of the ectopic pregnancy among the women was in the ampullary region (54.8%), followed by fimbrial region (22.6%).

A previous history of ectopic pregnancy was one of the risk factor for a consequent incidence which was seen in around 14% of the cases in our study. Other studies also have reported a strong association between previous ectopic pregnancy and the present one with one study reporting a 17 times higher rate in women with previous ectopic pregnancy compared to the controls.[14] The risk of ectopic pregnancy with a previous history was reported to be between 2.4 and 25 in some studies.[15,16,18]

Spontaneous abortion in our study had no significant effect on ectopic pregnancy, which was corroborated by the studies by Parashi et al however, no association was observed by Coste et al.[18,19]

In most of the patients there was no use of any contraceptive methods, while 11 of them were IUD users. A similar association was found between IUD and oral contraceptives in a study by Parashi et al and Chow et al[18,20]. In their study, use of IUD increased the chance of ectopic pregnancy, while oral contraceptive use prevented the condition. This was aided to be due to the inhibition of ovulation. IUD being one of the risk factors was also observed by other researchers.[6,21,22]

PID was observed in 19.4% of the patients with ectopic pregnancy which was in accordance to other studies, who reported a high association between PID.[16,19,23,24]

Tubal ligation was another risk factor which attributed to the increased incidence of ectopic pregnancy, which was observed in around 48% of the cases, while tubal damage was observed in nearly 20% of the cases. 76% of pregnancies after sterilization were ectopic in a study by Kier et al.[25]

CONCLUSION

Ectopic pregnancy is an emergency procedure, which if not removed immediately can lead to severe morbidity and mortality. Certain risk factors such as previous ectopic pregnancy, use of contraceptives, infertility, PID, abortion as well as increased maternal age aid in the early detection of ectopic pregnancy in women resulting in proper and timely treatment.

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