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Risk Factors of Ectopic Pregnancy

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Abstract: Aim of Study: This Thesis was done to clarify & asses the risk factors of ectopic pregnancy for women refferd to the obstetrical ward of Al-Mawanyaa- general hospital, Basra City. **Study design:** A prospective study achieved in the obstetrical ward of Al-Mawanyaa General Hospital for 52 patients for assessment of risk factors of ectopic pregnancy. **Patients & Methods:** During the period of study from December 2022 to October 2023., 52 patients diagnosed with ectopic pregnancy were referred to the obstetrical ward of Al-Mawanyaa General Hospital included in this study. Information were taken, involved the name of the patient, age, parity, history of previous pelvic infection, history of infertility, ovulation induction & IVF, contraception, previous pelvic surgery, abortion, Previous ectopic pregnancy, vaginal douching, in addition to their race & smocking. Then, we analysed this information according to the most frequent risk factors. **Result**: Ectopic pregnancy is found to be more among laydies aged with (20-35) years old (67.3%), whom are multiparus (82.7%). The most frequent risk factors were the presence of previous pelvic surgery (34.7%) to be followed by previous pelvic infection (19.2%). Contraception as a risk factor was (17.4%), especially with combined oral contraceptive pills (13.5%), History of infertility (15.4%), especially with ovulation induction, and rarely in patients with abortion (11.6%). Vaginal douching was very rare (3.9%). While cases having a history of previous ectopic pregnancy, use of the progesterone-only pill or LNG device, sterilization failure, in vitro fertilization, and smocking were absecent throughout my study. **Conclusion**: Ectopic pregnancy tends to be more in the peak reproductive age group (20-35) years & the increament of parity in adition to previous pelvic surgery were a major risk for developic ectopic pregnancy in this study.

Keywords: Ectopic, Pregnancy, LNG device, factors, Uterine cavity.

INTRODUCTION

An ectopic is one in which the blastocyst implants anywhere other than the endometrial lining of the uterine cavity and. Ectopic pregnancy was first recognized in 1693 by Busier when he was examining the body of a prisoner executed in Paris, and Ectopic pregnancy accounts for 1-2 % of the reported pregnancies in the United States [(1)]. It has steadily increased over the past three decades in the United States from 4.5 per 1000 pregnancies in 1970 to 16.8 per 1000 pregnancies in 1989 where. This incidence was found to be increasing due to: first, there is a continues increase in risk factors of ectopic pregnancy. Second, there is increased ascertainment of ectopics from the use of more sensitive & specific diagnostic methods that detect many cases that, in the past, would have resolved spontaneously without diagnosis [Zane, S. B. *et al*., 2002; Shaw, J. L. *et al*., 2010; Vichnin, M. *et al*., 2008]

Ectopic pregnancy occurs when an egg grows outside the uterus, with over 90% occurring in a fallopian tube. Risk factors include previous pregnancy, fallopian tube surgery, pelvic or abdominal surgery, STIs, pelvic inflammatory disease, and endometriosis[Farquhar, C. M, 2005; Varma, R. *et al*., 2009].

Ectopic pregnancy (EP) is a notable health concern for women in their reproductive years, comprising 1-2% of all pregnancies. Risk factors encompass situations or treatments that result in tubal injury, although their precise impact and magnitude have not been conclusively established because to limitations in sample size and study design. Possible contributing factors comprise prior fallopian tube surgery, pelvic or abdominal surgery, sexually transmitted diseases, pelvic inflammatory illness, and endometriosis[Barnhart, K. T. *et al*., 2006; Bouyer, J. *et al*., 2003; Marchbanks, P. A. *et al*., 1988; Bouyer, J. *et al*., 2002].

The study aims to identify potential risk factors and evaluate their contribution to EP in women attending a referral women's hospital in Iraq, as there are no existing publications on its incidence or risk factors[Herbertsson, G. *et al*., 1987].

Prior studies have mostly examined the risk factors for ectopic pregnancy in women who did not take contraception at the time of conception, perhaps

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resulting in uncertainty. The rising prevalence of EP and the demographic composition of the population can potentially alter the parameters that contribute to risk. The current study was carried out at five hospitals in Shanghai, assessing all potential factors that contribute to ectopic pregnancy in the general community rather than focusing solely on individuals with intended pregnancies. There is a need to reassess the impact and effectiveness of assisted reproductive technology on the occurrence of ectopic pregnancy[Bouyer, J. *et al*., 2000; Weiss, N. S. *et al*., 1985; Doyle, M. B. *et al*., 1991; Fernandez, H. *et al*., 1996].

PATIENTS AND METHODS

A prospective study was conducted in Al-Mawanyaa- general hospital, Basrah City, for a period from December 2022 to October 2023. During the period of study, 52 patients which was diagnosed as ectopic pregnancy were previously refered from the emergency unit, surgical word & private clinic to the obstetrical word. The information were taken from those patients in a special formula which included the name of the patient, age, parity, history of previous pelvic infection, history of infertility, history of ovulation induction in this pregnancy, IVF, use of contraception including the combined oral contraceptive pill, progesterone only pill, injectable progesterone, copper or merina intrauterine device. History of previous pelvic surgery, history of abortion, history of previous ectopic pregnancy, vaginal douching, smocking, and their race.

Finally, this information which, including risk factors of ectopic pregnancy, was analyses according to their frequency and percentage, and we knew which was more relevant to the courses of ectopic pregnancy.

RESULT

The frequency of risk factors of ectopic pregnancy is shown in the following tables.

Frequency of ectopic pregnancy according to the age:

Ectopic pregnancy was commenst in patients at the medium reproductive age (20-35) years, being 35 cases out of 52 cases (67.3%), followed by patients above 35 years (13) cases (25.0%).

It was comparatively rare in early reproductive age (< 20 years, with only 4 cases (7.7%). This is shown in Table no. 1

Table. 1: Distribution of E.P according to the age

	Maternal age	Frequency of ectopic pregnancy	Percentage
Valid	< 20	4	7.7 %
	20-35	13	25.0 %
	> 35	35	67.3%
	Total	52	100.0 %

Relation of ectopic pregnancy to the parity:

Multiparus women (43 patients) were the most frequency patients that presented with ectopic pregnancy (82.7%), while para one women (6 cases) were of less frequency (11.6 %), nulliparus women (3 patients) were of the least frequency (5.8%)

Table 2: Distribution of E.P. according to the parity

	Parity	Frequency of ectopic pregnancy	Percentage
Valid	Nulliparous	3	5.8 %
	P1	6	11.6 %
	Multiparous	43	82.7 %
	Total	52	100.0 %

Frequency of ectopic pregnancy according to the presence of previous pelvic surgery:

Ectopic pregnancy was fairly common in a patient whom have a history of previous pelvic surgery (18 women) out of 52 cases (34.6%), particularly those who had an obstetrical operation like cesarean section (11 cases) (21.2%), followed by those had a history of appendicectomy (3) women (5.8%). The minority of patients were either had gynecological operation (2) cases (3.8%) or multiple pelvic surgery (2) cases (3.8%)

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Table. 3: Distribution of E.P according to history of previous pelvic surgery

	Types of pelvic surgery	Frequency	Percentage
Valid	No surgery	34	65.4 %
	Cesarean section	11	21.2 %
	Gynecological operation	2	3.8 %
	Appendicectomy	3	5.8 %
	Multiple pelvic surgery	2	3.8 %
	Total	52	100.0 %

Frequency of ectopic pregnancy according to the presence of pelvic infection:

Ectopic pregnancy was with low frequency among women with pelvic infection (10) cases (19.2%) having of pelvic pains, greenish vaginal discharge & medications used.

Table. 4: Distribution of ectopic pregnancy according to the history of pelvic infection

	History of pelvic infection	Frequency	Percentage
Valid	No pelvic infection	42	80.8 %
	pelvic infection	10	19.2 %
	Total	52	100.0 %

Frequency of ectopic pregnancy according to the use of contraception:

The frequency of occurance of ectopic pregnancy with the use of contraception methods was low in general (17.3%) (9 cases). The combined oral contraceptive pills was (7 cases) out of 52 patients (13.5 %), while rarely, with copper intrauterine device users, only 2 cases out of 52 (3.8%).

Table. 5: Distribution of ectopic pregnancy according to the contraception

	Types of Methods used of contraception	Frequency	Percentage
Valid	No pelvic infection	43	82.7 %
	Combined oral contraceptive pills use	7	13.5 %
	Intrauterine device	2	3.8 %
	Total	52	100.0 %

Frequency of ectopic pregnancy according to the presence of a history of infertility:

Infertility, whether primary or secondary, was another risk factor for developing ectopic pregnancy in this study (8) cases out of 52 patients (15.3%).

There is great variation in the frequency of ectopic pregnancy for infertile women conceiving after ovulation induction (6) women (11.6%) from those whom their pregnancy was not induced, (2) women (3.9%)

Table. 6: Distribution of ectopic pregnancy according to history of infertility

	Previous history of infertility	Frequency of ectopic pregnancy	Percentage
Valid	Infertilities with ovulation induction	6	11.6 %
	Infertility without ovulation induction	2	3.9 %
	Infertility with & without ovulation induction	8	15.3 %
	Total	52	100.0 %

Table no. 7: Distribution of ectopic pregnancy according to history of abortion

	Types of abortion	Frequency of abortion	Percentage
Valid	No abortion	46	88.5 %
	Induced abortion	3	5.8 %
	spontaneous abortion	3	5.8 %
	Total	52	100.0 %

Frequency of ectopic pregnancy according to vaginal douching:

Ectopic pregnancy rarely occurred due to vaginal douching; only (2) women (3.8%)

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Table. 8: Distribution of ectopic pregnancy according to vaginal douching

	History of vaginal douching	Frequency	Percentage
Valid	No history of vaginal douching	50	96.2 %
	with vaginal douching	2	3.8 %
	Total	52	100.0 %

Association of ectopic pregnancy to the race:
Ectopic pregnancy rarely occurred in those black race women (2) patients (3.8%) while it was more common in white women (50) patients (96.2%)

Table. 9: Distribution of ectopic pregnancy according to the race

	Race of patients	Frequency	Percentage
Valid	White	50	96.2 %
	Black	2	3.8 %
	Total	52	100.0 %

DISCUSSION

History of previous ectopic pregnancy, infertility accompanied by the use of IFV, and history of smocking are not present throughout my study & therefore, they are not mentioned.

This study analyzed 52 women with ectopic pregnancy and found that 67% of cases were aged 20-35. Ectopic pregnancy was rare in patients below 20 years old and decreased in those with advanced maternal age. This finding aligns with previous studies, which found a significant relationship between ectopic pregnancy and patient age. The study concludes that older women's exposure to risk factors may not account for higher ectopic pregnancy risk. The physiological effect of advanced maternal age at conception remains unclear, and ectopic pregnancy was influenced by an increment of parity, where it increased as the parity increased. Throughout our study, it was high in multiparus patients (82.7%), while it was only (11.6%) in those with para one and very rare in nulliparous women (5.8%). This is supported by two studies conducted in 2012, where they noticed that ectopic pregnancy is more common in multiparus women, and a study done in Al-Basrah city at 1993, which show that ectopic pregnancy is highly associated with multiparus women but very low among nulliparous women and the study found a significant association between previous pelvic surgery and ectopic pregnancy (34.7%), similar to previous studies (19.7%) and (23%). This finding is consistent with previous studies (42, 2009) and 2012 (22.72%), [Li, C. *et al*., 2014; Daling, J. R. *et al*., 1985; Gemzell, C. *et al*., 1982] suggesting the high performance of pelvic surgery, particularly in cesarean sections, may contribute to this association.

The study found a link between pelvic infection and ectopic pregnancy (19.2%), with a similar association found in previous studies. Previous abortion was a minor risk (11.6%), unlike previous studies in Al-Mosul and Al Basrah. Both spontaneous and induced abortions were equally risky for ectopic pregnancy (5.8% and 5.8% respectively). [Oelsner, G. *et al*., 1989] This contrasts with a 2003 study in France that found a high adjusted risk of ectopic pregnancy in women with previous spontaneous abortions. However, a study in France found a higher risk for induced abortions due to surgical abortions, possibly due to the absence of systemic antibiotic prophylaxis.

The study found that infertility plays a role in ectopic pregnancy, with 15.3% of cases occurring in women induced by ovulation induction. Contraception effects were 17.4%, mainly due to combined oral contraceptive pills (13.5%) and copper intrauterine devices (3.8%). [Parashi, S. *et al*., 2014] This is similar to a 1993 study that found an association between contraception use and ectopic pregnancy (23.9%), with copper intrauterine device use being the most common form (12.57%). However, the study contradicted a 1993 study that found a significant association between contraception use and ectopic pregnancy. [Zhao, W. *et al*., 2014]

Our study shows no association between ectopic pregnancy and its recurrence; this was the conflicting result with a study done at 2012 in which ectopic pregnancy was associated with a previous history of ectopic pregnancy (9.09%). But our study was near to a study conducted in Ankra at 2008, which show that only (1.9%) of women were with first ectopic recurrence and (1.6%) were have a second repeated ectopic. On the other hand, our study was greatly mimic to

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study done at 1993 [41] in which ectopic pregnancy occurred only in (0.59%) in patients with a previous history of ectopic pregnancy.

Our study result was concurrent with previous studies done for ectopic pregnancy at 1993 in Al-Mosul and Al-Basrah city, in which there is no relationship between smoking and ectopic pregnancy, and in another study that show an association between smoking and ectopic pregnancy were too great, where they were (38.30%), (40.14%), (58.53%) and (28.18%) respectively. This variation might be attributed to the difference in the regional and socio-cultural factors.

CONCLUSION

Ectopic pregnancy is common in women with peak reproductive age (20-35 years) old and multiparous women.

Previous pelvic surgery is the major risk of high group patients for developing ectopic where surgery should be avoided as much as possible. On the other hand, pelvic infection is another important risk for developing ectopic pregnancy, which should be prevented or eradicated.

Use of contraception and infertility, especially with induction of ovulation, are of moderate risk for developing ectopic pregnancy.

Abortion and vaginal douching are of low risk for developing ectopic.

REFERENCES

1. Zane, S. B., Kieke, B. A. Jr, Kendrick, J. S. and Bruce, C. "Surveillance in a time of changing health care practices: Estimating ectopic pregnancy incidence in the United States." *Maternal and Child Health Journal*, 6 (2002): 227–236.
2. Shaw, J. L., Dey, S. K., Critchley, H. O. and Horne, A. W. "Current knowledge of the aetiology of human tubal ectopic pregnancy." *Human Reproduction Update*, 16 (2010): 432–444.
3. Vichnin, M. "Ectopic pregnancy in adolescents." *Current Opinion in Obstetrics and Gynecology*, 20 (2008): 475–478.
4. Farquhar, C. M. "Ectopic pregnancy." The Lancet, 366 (2005): 583–591.
5. Varma, R. and Gupta, J. "Tubal ectopic pregnancy." *Clinical Evidence (Online)*, (2009): 1406.
6. Barnhart, K. T., Sammel, M. D., Gracia, C. R., Chittams, J., Hummel, A. C. and Shaunik, A. "Risk factors for ectopic pregnancy in women with symptomatic first-trimester pregnancies." *Fertility and Sterility*, 86 (2006): 36–43.
7. Bouyer, J., Coste, J., Shojaei, T., Pouly, J. L., Fernandez, H. and Gerbaud, L, *et al*. "Risk factors for ectopic pregnancy: A comprehensive analysis based on a large case-control, population-based study in France." *American Journal of Epidemiology*, 157 (2003): 185–194.
8. Marchbanks, P. A., Annegers, J. F., Coulam, C. B., Strathy, J. H. and Kurland, L. T. "Risk factors for ectopic pregnancy: A population-based study." *Journal of the American Medical Association* 259 (1988): 1823–1827.
9. Bouyer, J., Coste, J., Fernandez, H., Pouly, J. L. and Job-Spira, N. "Sites of ectopic pregnancy: A 10-year population-based study of 1800 cases." *Human Reproduction*, 17 (2002): 3224–3230.
10. Herbertsson, G., Magnusson, S. S. and Benediktsdottir, K. "Ovarian pregnancy and IUCD use in a defined complete population." *Acta Obstetricia et Gynecologica Scandinavica*, 66 (1987): 607–610.
11. Bouyer, J., Rachou, E., Germain, E., Fernandez, H., Coste, J. and Pouly, J. L, *et al*. "Risk factors for extrauterine pregnancy in women using an intrauterine device." *Fertility and Sterility*, 74 (2000): 899–908.
12. Weiss, N. S., Daling, J. R. and Chow, W. H. "Control definition in case-control studies of ectopic pregnancy." *American Journal of Public Health*, 75.1 (1985): 67–68.
13. Doyle, M. B., DeCherney, A. H. and Diamond, M. P. "Epidemiology and etiology of ectopic pregnancy." *Obstetrics and Gynecology Clinics of North America*, 18 (1991): 1–17.
14. Fernandez, H., Bouyer, J., Coste, J. and Job-Spira, N. "The hidden side of ectopic pregnancy: The hormonal factor." *Human Reproduction*, 11 (1996): 243–244.
15. Li, C., Zhao, W., Meng, C., Ping, H., Qin, G. and Cao, S, *et al*. "Contraceptive Use and the Risk of Ectopic Pregnancy: A Multi-Center Case-Control Study." *PLoS One*, 9.12 (2014): e115031.
16. Daling, J. R., Chow, W. H., Weiss, N. S., Metch, B. J. and Soderstrom, R. "Ectopic pregnancy in relation to previous induced abortion." *JAMA* 253 (1985): 1005–1008.
17. Gemzell, C., Guillome, J. and Wang, C. F. "Ectopic pregnancy following treatment with human gonadotropins." *American Journal of*

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Obstetrics and Gynecology, 143 (1982): 761–765.
18. Oelsner, G., Menashe, Y., Tur-Kaspa, I., Ben-Rafael, Z., Blankstein, J. and Serr, D. M, *et al*. "The role of gonadotropins in the etiology of ectopic pregnancy." *Fertility and Sterility*, 52 (1989): 514–516.
19. Parashi, S., Moukhah, S. and Ashrafi, M. "Main risk factors for ectopic pregnancy: A case-control study in a sample of Iranian women." *International Journal of Fertility & Sterility*, 8.2 (2014): 147–154.
20. Zhao, W., Zhu, Q., Yan, M., Li, C., Yuan, J. and Qin, G, *et al*. "Levonorgestrel decreased the cilia beat frequency of human fallopian tubes and rat oviducts without changing the morphological structure." *Clinical and Experimental Pharmacology & Physiology*, 42.2 (2014): 171–178.

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