

Original Article

Ectopic Pregnancy risk factors among the patients referred to Shariati hospital in Bandarabbas

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ABSTRACT:

Background: Ectopic pregnancy (EP) is the most common cause of death related to pregnancy during the first trimester and its' incidence is increasing. Knowledge about the risk factors of EP can be helpful in diagnosis and also in prevention of EP, because some of these risk factors are preventable. The aim of this study is to assess the EP patients and the prevalence of EP risk factors among them in Bandarabbas.

Methods: Eighty two patients with EP referred to Shariati hospital in Bandarabbas in 2009 were included in our descriptive study. Study was conducted using a questionnaire about demographic characteristics, EP risk factors, and information about treatment and duration of hospital stay. Data was collected using interview with patients by educated personnel and patients' records during hospitalization. After data collection we analysed the data using SPSS 17.0 software using descriptive statistics (Mean, Standard Deviation, and frequency).

Results: Mean age of the participants was 27.46 ± 5.98 . Sixty four (78%) patients were households and 18(22%) were employees. Sixteen (19.5%) had low socioeconomic status, 62(75.6%) had intermediate socioeconomic status and 4 (4.9%) had high socioeconomic status.

Twenty one (25.6%) of patients were using withdrawal method for contraception at the time of conception. Condom, Oral Contraceptive Pills (OCP), DMPA, and IUD was reported in 7 (8.5%), 13 (15.9%), 8 (9.8%), and 2 (2.4%) respectively. Other 31 (37.8%) patients weren't using any method for contraception. Six (7.3%) patients had previous history of EP. Also 4 (4.9%) had history of previous EP in their near family members. One (1.2%) patient was undergone surgery for Tubal Ligation (TL).

Four (4.9%) patient were using tobacco. EP location was in fallopian tube in 62 (75.6%) and in other places in 20 (24.4%) of patients. Thirty four (41.5%) received drug therapy, 35 (42.7%) undergone surgery and 13 (15.9%) received both drug and surgery treatment. Mean duration of hospital stay was 5.73 ± 3.96 .

Conclusions: Despite the progress in diagnostic and therapeutic options for management of EP still there is a need for prevention of EP. All women should be aware of the risk factors of ectopic pregnancy.

Keywords: Ectopic Pregnancy; Risk Factors; Contraception

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1. INTRODUCTION

Ectopic pregnancy (EP) is the most common cause of death related to pregnancy during the first trimester and its incidence is increasing (1). It is shown that its incidence is strongly associated with the incidence of pelvic inflammatory disease (2-4). It is shown that women with history of previous EP or previous tubal surgery are at increased risk of EP (4-6). Intrauterine contraceptive devices (IUD) like other contraceptives are protective against EP but it is shown that women who become pregnant while are using IUD are at increased risk for EP in comparison to others (7). Infertility is another risk factor for EP and also using fertility drugs for pregnancy is associated with increased risk of EP (8, 9). Cigarette smoking is independently in association with EP and its association is dose-dependent (5). Women younger than 18 years old at the beginning of their sexual activity and women older than 35 years are more likely to develop EP (4, 10). Fallopian tube is the most common site of EP. Interstitial, Isthmic, oviductal, fimbrial, ovarian, and abdominal EP was reported in 2.4%, 12%, 70%, 11.1%, 3.2%, and 1.3% of 1800 surgically treated EP.(11) Also cesarean scar ectopic pregnancy is reported in women with only one cesarean delivery(12).

Knowledge about the risk factors of EP can be helpful in diagnosis and also in prevention of EP, because some of these risk factors are preventable. The aim of this study is to assess the EP patients and the prevalence of EP risk factors among them in Bandarabbas

2. MATERIAL AND METHODS

Eighty two patients with EP referred to Shariati hospital in Bandarabbas in 2009 were included in our descriptive study. Bandarabbas is the capital of Hormozgan province and the largest and the most popular city in this province. Shariati hospital is the only educational Obstetrics & Gynecology hospital serving Hormozgan University of Medical Science (HUMS). This study is approved in fertility and infertility Research Center in Shariati hospital. We explained our aims and our study methodology for the patients and only patients who accepted to participate in our study were enrolled. Study was conducted using a questionnaire about demographic characteristics, EP risk factors, and information about treatment and duration of hospital

stay. Data was collected using interview with patients by educated personnel and patients' records during hospitalization. All the patients were asked about their age, educational level, job, place of residence, and their socioeconomic status. Also data about Gravity, Parity, history of previous Abortion, the number of Live children, and gestational age (days) were recorded.

Also factors such as history of previous cesarean section, contraception method, Blood Group and Rh, Previous history of EP in patient and her near family members, history of Tubal Ligation (TL), previous surgery, infertility, spontaneous fertility or fertility using drug, tobacco consumption, and hormone therapy was recorded. We recorded initial β hCG level, EP location and side, EP size and treatment (Drug, Surgery, or both) for all the patients.

In some patients data about the initial β hCG level and EP size wasn't available, but we didn't excluded them from the study. After data collection we analysed the data using SPSS 17.0 software using descriptive statistics (Mean, Standard Deviation, and frequency).

3. RESULTS

A total of 82 patients were enrolled in our study. Mean age of the participants was 27.46 ± 5.98 which was variable between 18 to 44 years.

Two (2.4%) were uneducated. Educational level was in primary school 13(15.9%), guidance school in 21(25.6%), high school in 11(13.4%), diploma in 28(34.1%) and above diploma in 7 (8.5%). Sixty four (78%) patients were households and 18(22%) were employees. Sixty three (76.8%) were living in Bandarabbas, 14(17.1%) in rural places and 5(6.1%) in other cities. Sixteen (19.5%) had low socioeconomic status, 62(75.6%) had intermediate socioeconomic status and 4 (4.9%) had high socioeconomic status.

Current pregnancy was the first pregnancy in 30 (36.6%) of patients and second pregnancy in 22 (26.8%) of patients. Seventeen (20.7%) were in their 3rd pregnancy. Other 13 (15.8%) patients had 3 or more pregnancy before the current pregnancy.

Previous history of cesarean section was reported in 11 (13.4%) of patients.

Twenty one (25.6%) of patients were using withdrawal method for contraception at the time of conception. Condom, Oral Contraceptive Pills

(OCP), DMPA, and IUD was reported in 7 (8.5%), 13 (15.9%), 8 (9.8%), and 2 (2.4%) respectively.

Other 31 (37.8%) patients weren't using any method for contraception. 24 (29.3%) of patients had Blood Group A, 23 (28%) had Blood Group B. AB and O Blood Groups were reported in 3 (3.7%) and 32 (39%) of patients respectively, 72 (87.8%) of patients were Rh positive and 10 (12.2%) were Rh negative. Six (7.3%) patients had previous history of EP. Also 4 (4.9%) had history of previous EP in their near family members. One (1.2%) patient was undergone surgery for Tubal Ligation (TL).

History of previous surgery was reported in 34 (46.3%) of patients. Eleven (13.4%) had primary infertility and 5 (6.1) had secondary infertility. Pregnancy was occurred spontaneously in 77 (93.9%) of the patients. In other 5 (6.1%) of patients pregnancy was occurred using drug for their infertility.

Four (4.9%) patient were using tobacco. Hormone therapy was reported in 26 (31.7%) patient. EP location was in fallopian tube in 62 (75.6%) and in other places in 20 (24.4%) of patients. Also right side EP was reported in 53 (64.6%) and left side EP was seen in 29 (35.4%) of the patients.

Thirty four (41.5%) received drug therapy, 35 (42.7%) undergone surgery and 13 (15.9%) received both drug and surgery treatment. Mean β hCG level before treatment was 3860 ± 5494 and was variable between 30 and 30750. Mean duration of hospital stay was 5.73 ± 3.96 and was variable between 1 and 21 days. EP size was variable between $2.5 * 2.6$ mm and $83 * 64$ mm.

4. DISCUSSIONS

In a descriptive study we tried to estimate the prevalence of previously detected risk factors of EP in women referred to Shariati hospital in Bandarabbas with diagnosis of EP. Our data will be helpful for possible ways for prevention or at least lowering the risk of EP among these women. Unfortunately all risk factors of EP aren't changeable.

All women need to know about the risk factors of EP (13). About 19.5% of patients in our study had low socioeconomic status. It is shown that the socioeconomic status is a determinant factor in prediction of adverse outcomes in EP (14). Also there is a significant relationship between patients' socioeconomic status and the response to methotrexate therapy (15). Previous history of EP was reported in 7.3% of patients in our study. Previous history of EP and parity are significant factors in association with EP rupture (16). Another important factor in EP is the contraceptive method. It is shown that failure of contraception in some

methods leads to higher risk of EP among women who become pregnant during contraceptive use in comparison to others (17).

5. CONCLUSION

Despite the progress in diagnostic and therapeutic options for management of EP still there is a need for prevention of EP. All women should be aware of the risk factors of ectopic pregnancy.

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REFERENCES

1. Beckman JA, Creager MA, Libby P. Diabetes and atherosclerosis: epidemiology, pathophysiology, and management. *JAMA*. 2002;287:2570-81.
2. Grundy SM, Howard B, Smith S, et al. Prevention Conference VI: Diabetes and Cardiovascular Disease: executive summary: conference proceeding for healthcare professionals from a special writing group of the American Heart Association. *Circulation*. 2002;105:2231-39.
3. Smith SC, Faxon D, Cascio W, et al. Prevention Conference VI: Diabetes and Cardiovascular Disease: Writing Group VI: revascularization in diabetic patients. *Circulation*. 2002;105:e165-e169.
4. Flaherty JD, Davidson CJ. Diabetes and coronary revascularization. *JAMA*. 2005;293:1501-8.
5. Moussa I, Leon MB, Baim DS, et al. Impact of sirolimus-eluting stents on outcome in diabetic patients: a SIRIUS (SIrolImUS-coated Bx Velocity balloon-expandable stent in the treatment of patients with de novo coronary artery lesions) substudy. *Circulation*. 2004;109:2273-8.
6. Hermiller JB, Raizner A, Cannon L, et al. Outcomes with the polymer-based paclitaxel-eluting TAXUS stent in patients with diabetes mellitus: the TAXUS-IV trial. *J Am Coll Cardiol*. 2005;45:1172-9.
7. Sabate M, Jimenez-Quevedo P, Angiolillo DJ, et al. Randomized comparison of sirolimus-eluting stent versus standard stent for percutaneous coronary revascularization in diabetic patients: the diabetes and sirolimus-eluting stent (DIABETES) trial. *Circulation*. 2005;112:2175-83.
8. Daemen J, Garcia-Garcia HM, Kukreja N, et al. The long-term value of sirolimus- and paclitaxel-

- eluting stents over bare metal stents in patients with diabetes mellitus. *Eur Heart J*. 2007;28:26-32.
9. Stettler C, Allemann S, Egger M, et al. Efficacy of drug eluting stents in patients with and without diabetes mellitus: indirect comparison of controlled trials. *Heart*. 2006;92:650-7.
 10. Berry C, Tardif JC, Bourassa MG. Coronary heart disease in patients with diabetes: part II: recent advances in coronary revascularization. *J Am CollCardiol*. 2007;49:643-56.
 11. Lagerqvist B, James SK, Stenestrand U, et al. Long-term outcomes with drug- eluting stents versus bare-metal stents in Sweden. *N Engl J Med*. 2007;356:1009-19.
 12. Pfisterer M, Brunner-La Rocca HP, Buser PT, et al. Late clinical events after clopidogrel discontinuation may limit the benefit of drug-eluting stents: an observational study of drug-eluting versus bare-metal stents. *J Am CollCardiol*. 2006;48:2584-91
 13. Tu JV, Bowen J, Chiu M, et al. Effectiveness and safety of drug-eluting stents in Ontario. *N Engl J Med*. 2007;357:1393-402.
 14. Spaulding C, Daemen J, Boersma E, et al. A pooled analysis of data comparing sirolimus-eluting stents with bare-metal stents. *N Engl J Med*. 2007;356:989-97.
 15. World Health Organization . Definition, diagnosis and classification of diabetes mellitus and its complications: report of a WHO consultation. Part 1. Diagnosis and classification of diabetes mellitus. Geneva: World Health Organization; 1999;.
 16. Mehilli J, Dibra A, Kastrati A, et al.. Randomized trial of paclitaxel- and sirolimus-eluting stents in small coronary vessels. *Eur Heart J*. 2006;27:260-6.
 17. Moussa I, Leon MB, Baim DS, et al. Impact of sirolimus-eluting stents on outcome in diabetic patients: a SIRIUS (SIRolImUS-coated Bx Velocity balloon- expandable stent in the treatment of patients with de novo coronary artery lesions) substudy. *Circulation*. 2004;109:2273-8.
 18. Hermiller JB, Raizner A, Cannon L, et al. Outcomes with the polymer-based paclitaxel-eluting TAXUS stent in patients with diabetes mellitus: the TAXUS-IV trial. *J Am CollCardiol*. 2005;45:1172-9.
 19. Sabate M, Jimenez-Quevedo P, Angiolillo DJ, et al. Randomized comparison of sirolimus-eluting stent versus standard stent for percutaneous coronary revascularization in diabetic patients: the diabetes and sirolimus-eluting stent (DIABETES) trial. *Circulation*. 2005;112:2175-83.
 20. Spaulding C, Daemen J, Boersma E, et al. A pooled analysis of data comparing sirolimus-eluting stents with bare-metal stents. *N Engl J Med*. 2007;356:989-97.
 21. Tu JV, Bowen J, Chiu M, et al. Effectiveness and safety of drug-eluting stents in Ontario. *N Engl J Med*. 2007;357:1393-402.
 22. Kastrati A, Mehilli J, Pache J, et al. Analysis of 14 trials comparing sirolimus- eluting stents with bare-metal stents. *N Engl J Med*. 2007;356:1030-9.
 23. Babapulle MN, Joseph L, Belisle P, et al. A hierarchical Bayesian meta-analysis of randomised clinical trials of drug-eluting stents (see comment). *Lancet*. 2004;364:583-91.
 24. Nordmann AJ, Briel M, Bucher HC. Mortality in randomized controlled trials comparing drug-eluting vs. bare metal stents in coronary artery disease: a meta- analysis. *Eur Heart J*. 2006;27:2784-814.
 25. Pinto DS, Stone GW, Ellis SG, et al. Impact of routine angiographic follow-up on the clinical benefits of paclitaxel-eluting stents: results from the TAXUS-IV trial. *J Am Coll Cardiol*. 2006;48:32-6.
 26. Alter DA, Manuel DG, Gunraj N, et al. Age, risk-benefit trade-offs, and the projected effects of evidence-based therapies. *Am J Med*. 2004;116:540-5.
 27. Ko DT, Mamdani M, Alter DA. Lipid-lowering therapy with statins in high-risk elderly patients: the treatment-risk paradox. *JAMA*. 2004;291:1864-70.
 28. Cochran WG, Rubin DB. Controlling bias in observational studies: a review. *Sankhya Series A*. 1973;35:417-46.
 29. Cutlip DE, Windecker S, Mehran R, et al. Clinical end points in coronary stent trials: a case for standardized definitions. *Circulation*. 2007;115:2344-51.