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FACTORS RELATED TO ECTOPIC PREGNANCY IN RSUD R.A KARTINI JEPARA

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ABSTRACT

Background: Ectopic Pregnancy (EP) is a pregnancy outside the womb that ends with a rupture. Bleeding is one of the causes of the increase in Maternal Mortality Rate (MMR) by 24.5% in Central Java Province in 2017. Research to determine the factors associated with the occurrence of EP needs to be known so that the incidence of EP and MMR in Indonesia can be controlled. **Purpose**: This study aimed to see the incidence of EP and analyze the relationship between age and parity with the incidence of EP in Rumah Sakit Umum Daerah R.A Kartini Jepara. **Methods**: This is an analytic observational method with a case-control research design. Sampling was done by consecutive sampling method. A total of 83 samples met the inclusion criteria, which were divided into 51 pregnant women with EP and 32 pregnant women without EP. Data were analyzed univariate among independent variable and multivariate for dependent variables. The Chi square was used to test correlation between group. The factors assessed were age and parity. Other variables contained in medical records are included in the form of descriptive data. **Results**: The incidence of EP in RSUD R.A Kartini Jepara was 0.4% in 2017, 0.5% in 2018, and 0.3% in 2019. In EP patients, 54.9% of patients had education level of junior high school, 58.8% of patients had a salpingectomy procedure, 92.1% of EP located in fallopian tube and 60.7% patients need more than 4 days of hospital admission.. The results of the bivariate analysis using the Chi-square test showed a significant relationship between parity ($p = 0.029$) and the incidence of EP ($p < 0.05$). Meanwhile, age ($p = 0.897$) did not show a significant relationship with the incidence of EP ($p > 0.05$). **Conclusion**: There is a relationship between parity and the incidence of EP. Meanwhile, age is not related to the incidence of EP in RSUD R.A Kartini Jepara.
Keywords: *Ectopic Pregnancy, Age, Parity*

INTRODUCTION

A total of 295,000 women worldwide lost their lives during and after pregnancy and childbirth in 2017.[1] In Central Java Province in 2019, 416 maternal deaths occurred. The causes of maternal mortality are dominated by hypertension in pregnancy (123; 29.6%), bleeding (102; 24.5%), circulatory system disorders (49; 11.8%), infection (25; 6%), metabolic disorders (2; 0.5%).), etc. (115; 27.6%).[2] One of the causes of bleeding is ectopic pregnancy which occurs in early pregnancy. Whereas in Jepara Regency itself, there were 12 cases of maternal death in 2019.[3] Ectopic pregnancy (EP) or what is usually called pregnancy outside the womb is a pregnancy condition where the growth of a fertilized egg implants outside the endometrium of the uterine cavity. If the implantation site cannot adjust to the size of the pregnancy, the rupture will occur, resulting in Interrupted Ectopic Pregnancy.[4] The most common sites for ectopic pregnancy are the Fallopian Tubes (95%), ovaries, cervix, and abdominal cavity.[5] Several risk factors that can cause EP include age, parity, history of gynecological diseases, use of contraceptives, and history of smoking.

Based on the description above, the researcher is interested in determining the factors associated with the incidence of EP in RSUD RA Kartini Jepara with the hope that the results of this study can provide information about the factors associated with the occurrence of EP and provide descriptive data about other variables related to EP. at RA Kartini Jepara Hospital.

METHOD

This study used an analytic observational with a case-control design. This study aims to determine the factors associated with the incidence of EP in RSUD R.A Kartini Jepara. The research sample was taken by consecutive sampling method

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by collecting medical records of obstetric patients at RSUD R.A Kartini Jepara who met the inclusion and exclusion criteria, with the total sample of 28 patients. The inclusion criteria of this study were all patients with EP and non-EP patients (patients who experienced normal labor, both referral patients and general patients) in RSUD R.A Kartini Jepara. The exclusion criteria for this study included incomplete and illegible medical records. The independent variables in this study include age and parity. Meanwhile, EP and non-EP as the dependent variable in this study.

The data obtained were then analyzed using the Statistical Product and Service Solution (SPSS) program including univariate analysis to determine the frequency distribution of variables and bivariate analysis to analyze the relationship between age and parity with the incidence of EP using the Chi-square test, where the relationship was considered significant if p <0,05.

RESULT

In this study, secondary data were used in the form of medical records of all cases of mothers with EP and mothers without EP (who had spontaneous labor) which were recorded in RSUD R.A Kartini Jepara which had met the inclusion and exclusion criteria of the study. Medical record data from the period of 19 January 2017 to 21 June 2020 shows the number of EP patients was 51 people, while the number of non-EP patients is 32 people.

Table 1. Number of EP cases and number of deliveries

Year	Number of EP	Number of Deliveries	Incidence
2017	16	3297	0,4%
2018	17	3270	0,5%
2019	13	3884	0,3%

Based on the table 1, in 2017, 16 cases of EP were found out of 3297 deliveries that occurred in RSUD R.A Kartini Jepara. So that the incidence of EP in 2017 is 0.4%. In 2018, 17 cases of EP were found out of 3270 deliveries that took place in RSUD R.A Kartini Jepara. So that the incidence of EP in 2018 is 0.5%. In 2019, 13 cases of EP were found out of 3884 births that took place at RSUD R.A Kartini Jepara. So that the incidence of EP in 2019 is 0.3%.

Table 2. Characteristics of Research Subjects

Variables	Number of EP (%)	Number of Non-EP (%)
Level of Education		
Elementary (not graduated)	0 (0%)	1 (3,1%)
Elementary (graduated)	10 (19,6%)	2 (6,2%)
Junior High School	28 (54,9%)	13 (40,6%)
Senior High School	9 (17,6%)	9 (28,1%)
Bachelor/Diploma	4 (7,84%)	7 (21,8%)
Age (years)		
<20-25	10 (19,6%)	14 (43,7%)
26-30	19 (37,2%)	8 (25%)
31-35	16 (31,3%)	7 (21,8%)
>35	6 (3,7%)	3 (9,3%)
Parity		
0	14 (27,4%)	18 (56,2%)
1	24 (47,0%)	10 (31,2%)
2	11 (21,5%)	4 (12,5%)
3	2 (3,9%)	-
Gestational Age (weeks)		
Modus	7	39
Hb Levels		
Pre-surgery		
≥11 gr%	10 (19,6%)	-
<11 gr%	41 (80,3%)	-
Post-surgery		
≥11 gr%	14 (27,4%)	-
<11 gr%	37 (72,5%)	-
Treatment		
Salpingectomy	30 (58,8%)	-
Tubectomy	3 (5,8%)	-
Hysterectomy	1 (1,9%)	-
Fimbriectomy	3 (5,8%)	-
Salpingo-oophorectomy	11 (21,5%)	-
Salpingostomy	3 (5,8%)	-
Blood Transfusion		
Yes	44 (86,2%)	0 (0%)
No	7 (13,7%)	32 (100%)
History of Tumor Surgery		
Yes	2 (3,9%)	0 (0%)
No	49 (96,0%)	32 (100%)

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Infertility		
Primary	0 (0%)	3 (9,3%)
Secondary	7 (14,0%)	3 (9,3%)
No	44 (86,2%)	26 (81,2%)
Length of Surgery (minutes)		
Maximum	210	-
Minimum	30	-
Average	63,8	-
Amount of Bleeding (cc)		
Maximum	2500	-
Minimum	50	-
Average	660,7	-
Location of EP		
Tube	47 (92,1%)	-
Isthmus	1 (1,9%)	-
Fimbriae	2 (3,9%)	-
Ovarium	1 (1,9%)	-
Admitted to ICU		
Yes	5 (9,8%)	0 (0%)
No	46 (90,1%)	32 (100%)
Length of Inpatient (days)		
2	0 (0%)	17 (53,1%)
3	0 (0%)	13 (40,6%)
4	20 (39,2%)	1 (3,1%)
>4	31 (60,7%)	1 (3,1%)

Based on the table 2, the distribution of the incidence of EP and non-EP in RSUD R.A Kartini Jepara mostly occurs in patients with junior high school education level (54.9% EP and 40.6% non-EP). The highest proportion of EP incidence was patients in the 26-30 year age group (37.2%). The largest distribution of the incidence of EP was in mothers who had parity status 1 (primiparous) as many as 24 people (47.0%). The gestational age of 7 weeks is the gestational age mostly found in EP patients. The majority of pre-surgery and post-surgery Hb levels in EP patients were <11 g%. The most commonly performed procedure was salpingectomy followed with blood transfusion (86.27%). The majority of EP patients at RSUD R.A Kartini Jepara have never had tumor surgery. A total of 86.2% of EP patients and 81.25% of non-EP patients at RSUD R.A Kartini Jepara had no history of primary or secondary infertility.

As many as 92.1% of EP in RSUD R.A Kartini Jepara located in fallopian tube, but most of them (90.1%) did not require admission to ICU. A total of 31 EP patients (60.7%) need more than 4 days of hospital admission. Meanwhile, 17 non-EP patients (53.1%) only needed inpatient care for 2 days. The variables of age and parity were analyzed in tabular form below.

Based on the results of the Chi-square test, the parity variable obtained p-value = 0.029 (p <0.05). This shows that there is a significant relationship between parity and the incidence of EP in RSUD R.A Kartini Jepara. Primipara is the highest incidence rate in EP patients at RSUD R.A Kartini Jepara. While the age variable obtained a p-value > 0.05, which means that there was no significant relationship with the incidence of EP in RSUD R.A Kartini Jepara.

Table 3. Bivariate test results

Variables	EP N = 51		Non-EP N = 32		*p*
	F	%	F	%	
Age (years)					
<20	1	1,9	1	3,1	
20-35	44	86,2	28	87,5	0.897¥
>35	6	11,7	3	9,3	
Parity					
Nulliparous	14	27,4	18	56,2	
Primiparous	24	47,0	10	31,2	0.029¥*
Multiparous	13	25,4	4	12,5	

* Significant (p <0.05); ¥ Pearson Chi-square

DISCUSSION

The incidence of EP in RSUD R.A Kartini Jepara in 2017 was 0.4%. Meanwhile, in 2018, the incidence of EP was 0.5%. In this study, the incidence of EP occurred in women with junior high school education. This is in line with the study of Parashi et al. which states that the incidence of EP occurs mostly in women with educational levels aged 0-8 years (equivalent to junior high school).[6] The majority of pre-surgery and post-surgery Hb levels in this study were below 11 g%. This is in line with the research of Nurfazrina et al. which stated that mothers with a Hb level below 11gr% had an 8.37 times risk of recovery time ≥7 days.[7] In this study, the most length of stay was in the group >4 days. This shows that EP will increase the number of days hospitalized which will increase the expenses for EP patients.

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In this study, 86.2% of EP patients had no history of primary or secondary infertility. This is in line with the study of Parashi et al. which states that the incidence of EP occurs mostly in women without a history of infertility.[6] Infertility status was concluded by the investigators from medical records because there was no information on whether the mother was delaying pregnancy. In this study, the most locations for EP were in the Fallopian tube. This is in line with the research of Santoso (2006) which states that EP occurs a lot in the ampulla (61.5%) and the isthmus (11.5%).[8] This is because the large mucosal surface area in the ampulla can become a site for implantation.[9] Also, the ampulla consists of an epithelial layer, loose connective tissue, muscular and serous layer. This makes the ampulla an incubator where fertilization and initial division occur.[10]

In this study, the incidence of EP was mostly in women aged 20-35 years. This is in line with the study of Parashi et al. which states that interrupted ectopic pregnancy occurs mostly in women with an age range of 21-35 years with the largest percentage at 26-30 years old (33.3%).[6] In Santoso's study, EP occurs mostly in women with an age range of 26-30 years.[8] However, maternal age does not have a significant relationship with the incidence of EP in RSUD RA Kartini Jepara. Parashi et al. also state that aging can affect tubal function so that decreased tubal function will inhibit the transport of the ovum which can lead to implantation of the tube.[6] The majority of EP patients included in the 20-35 year age group at RSUD RA Kartini Jepara can be caused by a history of infection in the tubes or a previous history of gynecological diseases that the patient has so that tubal function is impaired and can increase the likelihood of developing EP.

In this study, parity had correlation with EP. This is in line with the study of Parashi et al. which states that primiparous have a greater percentage of experiencing EP followed by nulliparous and then multiparous.[6] However, Arifuddin states that mothers who have high parity will experience a decrease in reproductive system function.[11] In addition, multiparous women are at higher risk of experiencing ectopic pregnancy. This is related to the condition of the lower uterine segment which has become fragile and many small blood vessels have been damaged due to a history of childbirth.[4,12]

In this study, the researchers determined the infertility status based on the parity status and the patient's marital age without considering the wishes of the patients who might be delaying their pregnancy due to the absence of such data.

CONCLUSION AND SUGGESTIONS

Conclusion

1. The incidence of EP in RSUD R.A Kartini Jepara in 2017 was 0.4%. In 2018, the incidence of EP was 0.5%. Whereas in 2019, the incidence of EP was 0.3%.
2. In EP patients, 54.9% of patients had junior high school education level, 37.2% of patients were in the 26-30 year age group, 47% of patients were primiparous, 58.8% of patients had salpingectomy, 92.1% caused of EP was tubal obstruction and 60.7% of patients hospital admission more than 4 days.
3. There is a relationship between parity and the incidence of EP in RSUD R.A Kartini Jepara. Meanwhile, age is not related to the incidence of EP in RSUD R.A Kartini Jepara.

Suggestions

There is a need for completeness in writing and filling in medical records by the Doctor in Charge of Services / other medical personnel so that data related to risk factors for the occurrence of EP at RSUD R.A Kartini Jepara is more complete so that other researchers in the future will be well facilitated. In addition, there is a need for further research on the factors associated with the incidence of EP with a prospective cohort design to further confirm other risk factors that might be related to EP.

Ethical Approval

Ethical clearance was obtained from the Ethical Health Research Ethics Committee, Dr. Kariadi Hospital, Semarang.

Conflicts of Interest

There are no conflict of interest in this study.

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