



ECTOPIC PREGNANCY; FMH EXPERIENCE OF SUCCESS RATE OF SINGLE DOSE OF METHOTREXATE FOR THE MEDICAL MANAGEMENT OF ECTOPIC PREGNANCY

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ABSTRACT... Introduction: Medical treatment is the first step in the treatment of ectopic pregnancy (EP) now days. Medical treatment with Methotrexate for EP is safe and effective method without the risks associated with the surgical procedure. **Objectives:** To determine the success rate of single dose of Methotrexate for medical management of females presenting with EP. **Study Design:** Quasi trial study. **Setting:** Department of Obstetrics & Gynaecology, Fatima Memorial hospital, Lahore. **Period:** 1 year from September 2014 till August 2015. **Material & Methods:** Study design was prospective descriptive case series in which a total of 140 women, age 20-45 years of any parity with confirmed EP, were included. Females were prescribed Methotrexate 50mg/m², as a single dose. β -HCG level was measured again at 7th day. If β -HCG was decreased by >15% of baseline levels and decrease in the size of mass on USG, then success was labeled. Data was entered and analyzed using computer program SPSS version 20. **Results:** Mean age of women in this study was 32.38 \pm 6.34 years. At 3rd day post-treatment day, mean level of β -HCG was 2019.51 \pm 293.39 and at 7th day, mean β -HCG level was 1127.44 \pm 403.78. At 7th day, there were 125(89.3%) patients whose β -HCG level was decreased by >15% and success was labelled. **Conclusion:** Based on findings of this study it can be concluded that Methotrexate can be used as first line management protocol for EP as it was successful in a high percentage of patients.

Key words: Medical Management, Methotrexate, Single Dose, Success Rate, Tubal Ectopic Pregnancy.

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INTRODUCTION

Ectopic pregnancy (EP) represents 1.5– 2% of all pregnancies and is an imperative reason for morbidity among females within reproductive age group. Early and successful treatment of EP is important as it saves the patients from many upcoming complications. Medical treatment is the first step in the treatment of EP now days.¹⁻³ Medical treatment with Methotrexate for EP is safe and effective method without the risks associated with the surgical procedure. Regarding medical management, Methotrexate was first perceived as a potential treatment for unruptured EP in 1982 and is being used successfully for treatment of EP as an alternative to surgery.⁴⁻⁶ There are 3 treatment regimens of Methotrexate available: the multi-dose conventional treatment, one dose treatment and 2-dose treatment.^{7,8} The objective of this study was to assess the success

rate of single dose of Methotrexate for medical management of females presenting with EP.

MATERIALS & METHODS

It was a Quasi experimental conducted at the Department of Obstetrics & Gynaecology, Fatima Memorial hospital, Lahore. The Duration of study was one year, from September, 2014 to August, 2015. After approval from Ethical board of the hospital, this study was started. A sample size of 140 cases was calculated with 95% confidence level, 8% margin of error and taking expected percentage of success i.e. 65% with Methotrexate for medical management of females presenting with EP.⁹ Sampling technique used was non-probability consecutive sampling. EP was defined as presence of gestational sac outside the uterine cavity confirmed by ultrasound and positive hCG >1500IU/L. Also in this study, success was

measured by more than 15% decrease in beta hCG levels at 1st and 7th day after administration of single dose of Methotrexate. We included all female patients of age 20-45 years of any parity with confirm EP (positive hCG>1500IU/L and tubal mass on Ultrasonography) presented at gestational age<12 weeks (on LMP). Our exclusion criteria included:

- Females having allergy with Methotrexate; females with hemoperitoneum >100 ml;
- Females with adnexal mass >5 cm and presence of cardiac activity;
- Females with β-hCG >5000 IU/L; females with chronic hypertension (BP≥140/90mmHg);
- Deranged LFTs (AST>40IU, ALT>40IU); deranged RFTs (serum creatinine>1.2gm/dl);
- And low WBCs (<4500μL).

Informed consent for inclusion in this study was obtained from all patients. Demographic details (name, age, parity, gestational age) were obtained. Then females were prescribed Methotrexate 50mg/m², intramuscular injection, as a single dose. β-HCG level was measured again at 1st and 7th day. If β-HCG levels decreased by >15% of baseline β-HCG levels then success was labeled. All this information was recorded on proforma. Data was analyzed using computer program SPSS version 20. Mean and standard deviation was calculated for the quantitative variables like age and gestational age. Frequencies and percentages were calculated

for parity and success. Data was stratified for BMI (underweight, normal, overweight). Stratified groups were compared by using chi-square test taking p-value≤0.05 as significant.

RESULTS

Mean age of women in this study was 32.38±6.34 years (range: 20-45 years). Mean gestational age of women in the study was 7.66±1.81 weeks (range being 5-11 weeks). Among 140 women, most of them were multiparous. All details are given in Table-I.

At 1st day post treatment, mean level of β-HCG was 2019.51±293.39 IU/L and at 7th day mean β-HCG level was 1127.44±403.78 IU/L. At this point it can be seen that β-HCG level decreases as compared to that of 3rd day. At 1st day minimum and maximum level of β-HCG was 1500 IU/L and 2496 IU/L and at 7th day minimum and maximum β-HCG level was 596 IU/L and 2301 IU/L. As per operational definition cut point for success of β-HCG level at 7th day there were 125 (89.3%) patients whose β-HCG level was decreased by >15%. However, in the remaining 15 (10.7%) patients β-HCG level was decreased by <15%. As per operational definition success of treatment was seen in 125 (89.5%) patients. Patients who had success with Methotrexate were stratified according to body mass index (BMI) and no statistically significant result was seen Table-II.

Age (mean ± SD)	32.38±6.34 years
Gestational Age (mean ± SD)	7.66±1.81 weeks
Parity (n (%))	
Nuliparous	38 (27.14%)
Multiparity	102 (72.8%)
1	38(27.1%)
2	42(30%)
3	22(15.7%)

Table-I. Demographic details of patients

Body Mass Index	Success of Treatment		Total	P-Value
	Yes	No		
Underweight	46(36.8%)	4(26.7%)	50	0.092
Normal	46(36.8%)	3(20%)	49	
Overweight	33(26.4%)	8(53.3%)	41	
Total	125	15	140	

Table-II. Success of treatment in relation to body mass index of patients

DISCUSSION

EP is defined as pregnancy outside of the uterine cavity. It is a potential life threatening condition which may have devastating effects on maternal outcomes. Its incidence has increased all over the worldwide recently. Like advancements in all disease, EP is also mostly being treated by a lot of conservative measures. The most common location of EP is the fallopian tube followed by cervical, interstitial, hysterotomy scar, intramural, ovarian, or abdominal. Methotrexate is now being commonly used and is considered as first line treatment modality for EP.¹⁰⁻¹²

Several studies to determine factors associated with the success or failure of response to treatment have been done. Women most likely to respond to Methotrexate therapy are thought to be those with small gestational masses, lower serum concentrations of human chorionic gonadotropin and progesterone, and the absence of blood in the peritoneal cavity, but there is controversy in previous studies to determine the true effect of these characteristics on success rates.^{13,14}

In this study, success rate of Methotrexate therapy for EP was 89%. The success rate of Methotrexate is in line with the results of other studies who had assessed the success rate of Methotrexate for treating EP. Potter et al reported a success rate of 85% (69/81 patients)¹⁵, this was 72.4% (63/87) in Ustunyurt et al.¹⁶ An Iranian study reported the success rate of Methotrexate for treating EP was 77%.¹⁷

There is a continuous effort going on to treat EP with minimal invasive measurements. Recently, Gupta M reported the success of intra-sac injection of local KCL and systemic Methotrexate for the successful management of EP.¹⁸ In Potter et al study, the median pretreatment serum beta-human chorionic gonadotropin level was lower in those women in whom treatment was successful compared with those women with treatment failure (793 vs. 3804 mIU/mL, $p < 0.002$), similar to Ustunyurt et al study, (1,417 mIU/mL vs. 5,995 mIU/mL, $p < 0.001$).^{15,16} Regarding the successfulness of treatment, most common used definition is decrease of 15% or

20% of β -HCG serum levels. In this study, we have used the same operational definition. However, another study recently has shown that any decrease in β -HCG serum levels between 1 and 7 days after start of treatment with Methotrexate may also be used as an alternative.¹¹

Results of this study confirmed the success rate of a single dose of Methotrexate for medical management of patients presenting with EP. Based on these results now Methotrexate is a reliable drug not only as a first line medical management it is also help full for reduction of unnecessary surgical interventions.

CONCLUSION

Based on the findings of this study it can be concluded that Methotrexate therapy is a successful first line medical treatment modality for tubal ectopic pregnancies. The controversy regarding the effectiveness of Methotrexate is clear now and this can be used effectively for treating ectopic pregnancies as well as to avoid unnecessary surgical interventions for the patients.



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AUTHORSHIP AND CONTRIBUTION DECLARATION

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