A COMPARISON OF COMPLICATIONS IN PREVIOUS CAESAREAN WITH NON CAESAREAN CASES UNDERGOING MISOPROSTOL INDUCED MID TRIMESTER ABORTIONS

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ABSTRACT

Objective: To compare cases of previous caesarean cases with non- caesarean for complications in Misoprostol Induced Mid Trimester abortions

Study Design: A prospective cohort study design.

Place and Duration of Study: This study was conducted at Combined Military Hospital (CMH) Nowshera, from Jan 2014 to Jun 2015.

Patient and Methods: This is a comparative study of two cohorts. One of the cohorts, labeled as 'A' included cases (n=30) of at least one previous caesarean delivery and other cohort labeled as 'B' were normal cases (n=76) with no uterine scars either from previous caesarean delivery or any other surgery. Both these cohorts were admitted to CMH Nowshera for Misoprostol Induced Mid Trimester (MI-MT) abortions. Indications for abortion varied from case to case. Comparison between the two cohorts was made for complications including (1) Heavy blood loss (2) Severe pain (3) Failure of Induction. A cut off value was set for heavy blood loss (>1000 ml), while severity of pain was a subjective perception, categorizing into mild to moderate and severe. Failure of induction was considered after 72 hours. Chi square and Fisher's exact tests were performed to test the null hypothesis of no significant difference between the two cohorts for each of the three complications. Effect of two confounding variables (i) Maternal age and (ii) Parity was also investigated. ANOVA was performed to find out a significant difference between categories of maternal age and parity within each cohort.

Results: Chi square and Fisher's exact tests showed a significant difference (p-value<0.05) between the two cohorts for all the three complications of MI-MT abortions. Incidence of heavy blood loss, severe pain and failure of induction were significantly higher in cohort 'A' that comprised of previous caesarean cases.

Conclusion: This study emphasized the need for more sensitive and careful management of cases admitted for termination of pregnancies with history of previous caesarean sections.

Keywords: Misoprostol Induced Mid Trimester (MI-MT) abortion, previous caesarean and non-caesarean cases, comparison of complications.

INTRODUCTION

Caesarean section (CS) is one of the most common surgeries, performed all over the world by obstetricians and its incidence is increasing. The statistics revealed rise in caesarean section in both developed and developing countries. This tremendous increase in the rate of cesarean delivery is due to many factors which include, unnecessary inductions, elderly primigravida[1], fading art of forceps and breech delivery, cesarean delivery on request, decrease in number of patients and doctors who are willing to try vaginal birth after cesarean delivery to avoid litigation, and an increase in the number of patients having pregnancy with preexisting medical disorders (diabetes mellitus, hypertension ischemic heart disease and congenital heart disease).

Miscarriage is the most common complication in the early pregnancy. Data revealed that one in five clinical pregnancies will end in miscarriage[2]. There are different management options available including expectant treatment,

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medical and surgical management[3]. Expectant management means spontaneous expulsion in 3 to 4 weeks' time from diagnosis of non viable pregnancy.

Medical termination is an acceptable option for many women diagnosed as case of missed miscarriage or fetal demise in first and second trimester[4]. The women should ideally be counseled about risk and benefits and possible complications including need for surgical evacuation if medical option is unsuccessful[5].

Misoprostol, a prostaglandin E1 analog is the most commonly used agent for medical termination of pregnancy. Its safety and efficacy is well established[6,7]. WHO and FIGO have given guide lines for pregnancy termination by misoprostol including the route and dose. The recommended dose is 800 mcg every 3 to 12 hrs[8]. Recent systematic review evidence does support the finding that previous CS is a risk factor for uterine rupture during abortion; the absolute risk is less than 0.4%, which many women may find acceptable[9].

Suction evacuation is the conventional and acceptable method but incomplete evacuation, cervical incompetence, uterine perforation and damage to endometrium or myometrium (resulting in abnormal placentation in next pregnancy) are known complications.

The optimal mode of management in women undergoing termination of pregnancy with previous multiple caesarean births presents a challenge for obstetricians due to absence of evidence-based protocols of proven efficacy, safety and acceptability in these challenging cases[10].

In our study we have compared the complications in misoprostol induced mid trimester abortions including blood loss, pain severity and failure of induction in patients having scared uterus as compared to unscared uterus.

MATERIAL AND METHODS

This prospective cohort study was conducted at Combined Military Hospital (CMH) Nowshera after approval from ethical committee of the hospital. The duration of this study was from Jan 2014 to Jun 2015. Indications for MI-MT included intra uterine death (IUD), foetal anomalies, and missed abortion with unknown causes. All cases were in mid-trimester of gestation. Abortions earlier than 13 weeks and later than 26 weeks of gestation were excluded from this study.

Cohort 'A' includes all cases with history of at least one previous caesarean section. Total number of cases were 30 (nA=30).

Cohort 'B' includes all cases without any history of previous caesarean section. Total number of cases were 76 (nB=76).

Feasible sampling technique was used that is all the patients who were in their mid-trimester (MT) and came to the CMH Nowshehra for the abortion due to various indications (e.g. missed abortion, fetal anomalies etc) and were chosen for Misoprostol Induced (MI) abortion, were included in the present study. An informed consent was taken from the couple. The drug regimen used for less than 20 wks was two tablets (400 mcg) 6 hourly for maximum of three dozes in 24 hours for more than 20 wks 1 tablet 6 hourly maximum three dozes in 24 hours. Blood loss was measured both through subjective and objective measures. Subjective measure included the observation of consultant at the spot. Objective measurement included size and frequency of blood clots passed, number of sanitary pads used.

Severity of pain was a subjective perception as observed by the consultant and pain assessment was done on pain scale.

Need for surgical intervention was decided after failure of induction for a maximum of 72 hours. The period may be more or less depending upon the severity of pain and scar tenderness.

Statistical Analyses

Chi square and Fisher's exact tests were performed using statistical software SPSS version 16 to find out a significant difference (p-value <0.05) between the two cohorts for all the three complications of MI-MT abortions.

(1) Heavy blood loss: A cut off value was set for heavy blood loss (>1000 ml).

(2) Severe pain was categorized into two categories one is mild to moderate and other is severe. Assignment of cases to these categories depends on subjective perception of the observer.

(3) Failure of Induction and need for surgical intervention was considered after 72 hours of induction by Misoprostol.

Chi-square and exact tests were performed to find out significant difference between age categories of cohort 'A' and cohort 'B'.

Chi square and exact tests were also performed to find out significant difference between parity categories of cohort 'A' and cohort 'B'.

Table-I: Incidence of blood loss in Cohort A and B. *p*-values of Chi-square and Fishers' exact tests showed that the difference is statistically significant.

		Blood Loss		Pain Severity		Need For Surgical Intervention	
Cohort	**Previous Scar**	**Less Than 1000 ML**	**More Than 1000 ML**	**Mild To Moderate**	**Severe**	**Yes**	**No**
A	Yes	22	8	27	3	4	26
B	No	74	2	76	0	2	74
Chi square test *p*-value		0.000		0.005		0.032	
Fishers exact test *p*-value		0.001		0.021		0.050	

Table-II: Significant effects of confounding variable of Maternal Age on outcomes of (A) Blood loss (B) Pain, and (C) Need for surgical intervention as depicted by *p*-values of chi square and exact tests.

Effect of Maternal Age on Blood loss.

Category of Age	**Category of Blood Loss**	**Previous Scar**		**Chi square (*p*-value)**	**Exact test (*p*-value)**
		Yes	**Yes**		
15-20	Less Than 1000 ML	4	11	0.126	0.312
	More Than 1000 ML	1	0		
21-30	Less Than 1000 ML	14	58	0.001	0.003
	More Than 1000 ML	6	2		
31-40	Less Than 1000 ML	4	5	0.292	0.500
	More Than 1000 ML	1	0		

Effect of Maternal Age on Pain

Category of Age	**Category of pain**			**Chi square (*p*-value)**	**Exact test (*p*-value)**
		Yes	**No**		
15-20	Mild to moderate	5	11	Not applicable	Not applicable
	Severe	0	0		
21-30	Mild to moderate	17	60	0.002	0.014
	Severe	3	0		
31-40	Mild to moderate	5	5	Not applicable	Not applicable
	Severe	0	0		

(C) Effect of Maternal Age on Need for surgical intervention.

Category of age	**Need for surgical intervention**	**Previous Scar**		**Chi square (*p*-value)**	**Exact test (*p*-value)**
		Yes	**No**		
15-20	Yes	1	0	0.126	0.312
	No	4	11		
21-30	Yes	3	2	0.062	0.097
	No	17	58		
31-40	Yes	0	0	Not applicable	Not applicable
	No	5	5		

RESULTS

There were one hundred and six (n=106) patients who were included in the present study.

There were seventy six (nA=76) patients who had no history of previous cesarean sections and thirty (nB=30) patients who had a history of at least one previous cesarean section. All the patients of cohort A and B were treated with Misoprostol

significant difference (*p*-value less than 0.05) between the two cohorts (table-I).

Chi square and exact tests for categories of maternal age (table-II) and parity (table-III) showed a statistically significant difference (*p*-

Table-III: Significant effects of confounding variable of Parity on outcomes of (A) Blood loss (B) Pain, and (C) Need for surgical intervention as depicted by *p*-values of chi square and exact tests.

Effect of Parity on Blood loss

Category of Parity	Category of Blood Loss	Previous Scar		Chi square (*p*-value)	Exact test (*p*-value)
		Yes	No		
No child	Less Than 1000 ML	0	3	Not applicable	Not applicable
	More Than 1000 ML	0	0		
1-2 children	Less Than 1000 ML	12	38	0.009	0.022
	More Than 1000 ML	4	1		
3-4 children	Less Than 1000 ML	10	33	0.008	0.021
	More Than 1000 ML	4	1		

Effect of Parity on Pain

Category of Parity	Category of pain	Previous Scar		Chi square (*p*-value)	Exact test (*p*-value)
		Yes	Yes		
No child	Mild to moderate	0	3	Not applicable	Not applicable
	Severe	0	0		
1-2 children	Mild to moderate	13	39	0.005	0.021
	Severe	3	0		
3-4 children	Mild to moderate	14	34	Not applicable	Not applicable
	Severe	0	0		

(C) Effect of Parity on Need for surgical intervention

Previous Scar	Previous Scar	Previous Scar		Chi square (*p*-value)	Exact test (*p*-value)
		Yes	No		
No child	Yes	0	0	Not applicable	Not applicable
	No	0	3		
1-2 children	Yes	4	0	0.001	0.005
	No	12	39		
3-4 children	Yes	0	2	0.354	0.497
	No	14	32		

(exposure) and outcomes of complications were studied. Three complications studied in the present study were blood loss, severity of pain and failure of induction that leads to need for surgical intervention.

Incidence of heavy blood loss, severe pain and failure of induction (that leads to need for surgical intervention) were significantly higher in cohort 'A' that comprised of cases of at least one previous caesarean section than cohort 'B' that comprised of cases with no uterine scars. Chi square, and Fisher's exact tests showed a statistically

value <0.05) between cohort 'A' and cohort 'B' for the incidence of heavy blood loss (A), severe pain (B) and failure of induction that leads to need for surgical intervention (C). Significant *p*-values showed that maternal age and parity can seriously affect the incidence of complications.

DISCUSSION

Patients coming for termination of pregnancy during mid-trimester with previous caesarean section pose a challenge for the obstetrical team[11]. The incidence of caesarean section is increasing all over the world due to different indications. On

the other hand mid trimester abortions are also commonly reported. When the two incidences happen simultaneously the risk for the patients increased many folds. Risk may include heavy blood loss, severe pain, scar tenderness, scar rupture and failure of induction that leads to surgical intervention hence putting the patient on further risk.

The approach decided for cesarean cases starts with the decision of using drugs for the induction of abortion. Prostaglandins are in use for termination of pregnancy for more than two decades but its safety and efficacy in patients having previous cesarean section needs to be evaluated and conducted in more studies with large sample size[12]. The literature review showed a number of retrospective studies on this subject and few prospective studies like ours.

In this study we have compared the two cohorts. Cohort 'A' having no caesarean section with the cohort 'B' having one or more caesarean section in term of complications for misoprostol induced mid trimester (MI-MT) abortion. The incidences of heavy blood loss, severe pain and failure of induction were significantly higher in cohort A.

Our results are in contrast to study by Dickinson who concluded that the use of misoprostol for mid trimester abortions in women with previous caesarean section was not associated with increased complications compared with women having no scars[13]. Gulec *et al* also reported that misoprostol is safe in patients having previous caesarean section for termination of pregnancy[14].

Varras *et al* concluded that the decision to attempt pregnancy termination in second trimester in cases with previous uterine scar should be made on case to case basis with careful monitoring in such patients[15]. But Berghella *et al* showed that patient having previous caesarean section who underwent termination of pregnancy had incidence of uterine rupture 0.4% and incidence of blood transfusion 02%[16]. Unfortunately he did not compare the two cohorts as it was done in the present study. Fawzy and Hady suggested lower dose of misoprostol to be used for termination of pregnancy in patient with history of caesarean sections[17,18].

Rath highlighted that known risk factor for uterine rupture is type of uterine scar would need to be taken into account when selecting patient for labour induction after previous caesarean section[19].

Torriente *et al* also reached the conclusion that use of misoprostol in women with previous caesarean section is safe and not associated with excess complications[20]. On the other hand study conducted by Iftikhar *et al* did not find any increase in complications following use of use of misoprostol for mid trimester pregnancy termination in patients with previous casaerean section[21].

Despite becoming the drug of choice for pregnancy termination in second trimester uterine rupture can still occur as a serious rare complication[22]. Therefore regime protocol should be made very cautiously according to the recent recommendations and patient obstetrical history[23,24].

It is evident from the above discussion that both contrary and supportive evidences for the results of present study are reported in the literature. However it is a ubiquitous phenomenon that all of them cautioned against the incidence of complications in induced abortion cases with history of cesarean sections with strict monitoring and follow up. The optimal approach to induce abortion for women with a history of cesarean sections is a high risk phenomenon. There is no fixed rule that guarantees to treat them with safety. However consultants need a flexible approach according to the need of the situation with strict supervision to safe guard against incidence of complications that may prove fatal.

A more comprehensive approach that includes larger sample size of the patients taken from multiple sampling area and more demo-

graphic data available for each patient will likely to make the results more reliable and valid.

CONCLUSION

This study emphasized the need for more sensitive and careful management of cases admitted for termination of pregnancies with history of previous caesarean sections.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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