Title: Comparison of the psychological impact of medical versus surgical management of miscarriage

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Running Title

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Ethical statement

- Authors declare that there is no conflict of interest
- No funding.
- Accepted by the Ethical Research Committee of the Obstetrics and Gynecology Department and institutional review board (IRB) in the Faulty of Medicine (R.23.09. 2343.R1)
- Written informed consent was taken from the participants

Abstract

Introduction : psychological morbidities include anxiety, depression, and post-traumatic stress disorder occur after miscarriage. Multiple factors make the patients more vulnerable to psychiatric complications. We aimed to compare the psychological impact of medically terminated versus surgical evacuated miscarriage patients.

Patients and Methods: Our comparative descriptive study was conducted on patients from the Gynaecology and Obstetrics clinic of Mansoura Hospital, Egypt.

All patients were divided into two groups according to their mode of termination: group A, who had surgical evacuation, and group B, who had medical termination.

Both groups underwent psychological function assessment. The results compared to each other. The psychological function of each participant was evaluated by the Arabic version of the Hospital Anxiety and Depression Scale (HADS) within three months of miscarriage. We used the PSTD checklist for the Diagnostic Statistical Manual of Mental Disorders—5th Edition (DSM-5).

Results : Twenty-five patients in group A and twenty-five in group B. women in both groups have increased rates of psychiatric disorders affection regarding depression, anxiety, and PTSD. It shows that 68% in group A have

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depression compared with 68% in group B indicating no significant difference between the two groups. It shows that 72% are suffering from anxiety in group A compared with 68% having anxiety indicating no significant difference between both groups. According to PTSD, there were no significant differences between the two groups with a high rate of affection around 72% in group A versus 68% in group B.

Conclusion: increased rates of depression, anxiety, and PTSD in women in both groups without any significant difference between the two groups with the hypothesis of the effect mainly related to the loss of pregnancy itself regardless of the method of termination.

Keywords: miscarriage, depression, anxiety, and PTSD.

Introduction

Higher rates of psychiatric complications are found and often prolonged in women with miscarriages compared to the general population. (1; 2). This finding should be extensively evaluated, as miscarriages are one of the obstetric complications that affects about 23 million every year all over the world. Such psychological morbidities include anxiety, depression, and post-traumatic stress disorder (PSTD) (1). Possible figures for complications after miscarriage are 32% for anxiety, 16% for depression, and 28% for PTSD (3).

Multiple factors make the patients more vulnerable to psychiatric complications such as women with previous miscarriages, a low educational level, female ostracism, and high neuroticism scores. (4). The management of miscarriage, either medical or surgical, has not previously been studied as an independent factor of psychiatric complications following miscarriage. We aimed to compare the psychological impact of medically terminated versus surgical evacuated miscarriage patients.

Patients and Methods

Our comparative descriptive study was conducted on patients from the Gynaecology and Obstetrics clinic of Mansoura Hospital, Egypt. The Institution Research Board (R.23.09. 2343.R1) approved the study protocol. We got informed written consent from each participant.

The patients will have the following eligibility criteria:

- Having suffered a pregnancy loss in the first 13 weeks of gestation,
- Being ≥ 18-35 years old
- All healthy women with no medical disorder.
- The women in both groups had live children with no period of infertility.
- Having no previous psychiatric disorders

Patients with miscarriages managed expectantly, or cases presented with complete miscarriage are excluded from the study.

All patients were divided into two groups according to their mode of termination: group A, who had surgical evacuation, and group B, who had medical termination.

both methods of termination were done according to our local guidelines which are based on NICE guidelines (5). Both groups underwent psychological function assessment. The results compared to each other.

Psychological function assessment

The psychological function of each participant was evaluated by the Arabic version of the Hospital Anxiety and Depression Scale (HADS) within three months of miscarriage. There are 14 items on this self-assessment scale, which includes both depression as well as anxiety dimensions: 7 items for each dimension, with a cut off of eight for anxiety and nine for depression. Since the scores for each item ranged from 0 to 3, the person

could receive a result for either anxiety or depression between zero to 21 (6).

The Arabic version of HADS is a reliable and valid tool for assessing mood states. Cronbach's αs were 0.83(95%CI:0.79–0.88) for the HADS anxiety subscale and 0.77 (95% CI: 0.7–0.83) for the HADS depression subscale. The majority of patients thought that the questions of the HADS were obvious, easily understood, and covered all their concerns about their hospital anxiety and depression (6). We used the PSTD checklist for the Diagnostic Statistical Manual of Mental Disorders—5th Edition (DSM-5). (7)

Statistical analysis

Data was analysed using SPSS (Statistical Package for Social Sciences) version 22. Qualitative data is introduced as number and percent, quantitative data is tested for normality by Kolmogrov-Smironv test then described as mean and standard deviation for normally distributed data and median and range for non-normally distributed. We used Chi-Square for the categorical variable Student T-test and Mann Whitney U test.

Results

Seventy-five patients with miscarriage were assessed for eligibility. Twenty patients were Excluded (Not meeting inclusion criteria) and five patients declined to participate. Twenty-five patients had surgical evacuation (group A) and twenty-five patients had medical termination (group B).

Table (1) illustrates that there were no significant differences between the two groups in the mean age, parity, residence, educational level, gestational age, number of miscarriages, and history of any chronic disease. The miscarriage in both groups occurred in the 10th week of pregnancy in most cases.

Table (2) and Figure (1) illustrate that women in both groups have increased rates of psychiatric disorders affection regarding depression, anxiety, and PTSD

It shows that 68% (17 women out of 25) in group A have depression with a mean score of 9.44 compared with 17 in group B with a mean score of 9.80 indicating no significant difference between the two groups.

It shows that 72% (18 women out of 25) are suffering from anxiety in group A compared with 68% (17 women out of 25) having anxiety indicating no significant difference between both groups.

According to PTSD, there were no significant differences between the two groups with a high rate of affection around 72% in group A versus 68% in group B

Discussion

Although multiple factors affect the risk of post-miscarriage psychiatric complications, the route of management is little discussed as an independent cause. The difference is great between surgical management and medical treatment. In the surgery route, the patient had to go to the theatre and be counselled for some complications including the anaesthesia complications. In medically treated patients, the duration is prolonged with much pain. We searched whether the psychotic complication could be related to the type of management or it is due to the event of pregnancy loss itself and if the surgery experience can aggravate the condition or the long time and pain of medical is responsible for this.

All the factors affecting the outcome such as age, parity, Residence, Educational level, Occupation Number of children, Gestational age of the pregnancy, and previous mental condition were equal between both groups to ensure the effect of the method of pregnancy termination on the outcome.

Our results showed increased rates of depression, anxiety, and PTSD in women in both groups without any significant difference between the two groups. That with

the hypothesis of the effect mainly related to the loss of pregnancy itself regardless of the method of termination. This is supported by a study that revealed that Some partners developed levels of PTS, anxiety, and depression after miscarriage to their partners. (8).

Miller et al. studied similar ideas about the mode of termination however they divided the cases as care in the emergency departments versus outpatient care and they found patients in the emergency departments were more likely to be predisposed to psychosocial aspects (9).

We cannot compare our results with this study as we compare two active methods of treatment and we excluded all patients managed expectantly or presented with complete miscarriage. We agreed that expectant management will have less impact on the psychological impact of the patients and therefore, we did not choose to compare expectant to active management.

Our limitations of the study are the small sample size and lack of long-term follow-up of the cases. We recommend further studies to discover this blind area of research and we recommend promoting psychological support for patients with miscarriage whatever the methods of management.

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Table (1): comparison of demographic, obstetric history among studied groups.

	Group A (surgical evacuation) N=25	Group B (medical evacuation) N=25	Test of significance
Age (years) Mean±SD	29.0±7.54	30.80±7.17	t=0.865 p=0.391
Residence n(%) Urban Rural	12(48.0) 13(52.0)	14(56.0) 11(44.0)	$\square^2$=0.321 P=0.571
Educational level n (%) Low Middle High	3(12.0) 14(56.0) 8(32)	6(24.0) 12(48.0) 7(28.0)	$\square^2$=1.22 P=0.543
Occupation n(%) Not working Worker HCW Engineer Employee	19(76.0) 2(8.0) 4(16.0) 0 0	21(84.0) 0 2(8.0) 1(4.0) 1(4.0)	$\square^{2MC}$=4.77 P=0.312
Parity Median (min-max)	3(1-7)	4(1-8)	Z=1.42 P=0.157
Number of children Median (min-max)	2(0-4)	2(0-5)	Z=1.63 P=0.101
Miscarriage number Median (min-max)	1(1-3)	1(1-5)	Z=0.738 P=0.461
Gestational age / weeks Median (min-max)	10(5-25)	10(4-26)	Z=0.0 P=1.0
Chronic disease n(%)	3(12.0)	4(16.0)	$\square^{2FET}$=1.22 P=0.543

t:Student t test , Z:Mann Whitney U test , □2:Chi-Square test , FET :Fisher exact test , MC: Monte Carlo test

Table (2): comparison of depression, anxiety and PTSD between studied groups

	Group A (surgical evacuation) N=25	Group B (medical evacuation) N=25	Test of significance
Depression Mean±SD	9.44±3.37	9.80±4.59	Z=0.316 P=0.754
Normal n(%) Borderline Abnormal	8(32) 6(24) 11(44)	8(32) 5(20) 12(48)	Mc=0.134 P=0.935
Anxiety Mean±SD	9.84±4.25	10.76±5.19	Z=0.684 P=0.497
Normal n(%) Borderline Abnormal	7(28) 5(20) 13(52)	8(32) 4(16) 13(52.0)	□2=0.178 P=0.915

PTSD Mean±SD	21.32±9.23	23.76±13.12	Z=0.761 P=0.451
< threshold n(%)	4(16.0)	5(20.0)	Mc=6.42 P=0.492
Subclinical	3(12.0)	3(12.0)	
Mild	4(16.0)	3(12.0)	
Moderate	4(16.0)	3(12.0)	
Moderately severe	7(28.0)	4(16.0)	
severe	3(12.0)	2(8.0)	
Extremely severe	0	5(20.0)	

Z:Mann Whitney U test

Figure (1): comparison of depression, anxiety and PTSD between studied groups