Ministry of Higher Education and Scientific Research

Thi-Qar university _ college of medicine 2020--2021

Risk factors of missed abortion in Nasiriyah

This Study was submitted in partial fulfilment of the requirement for the M. B. Ch. B

Supervised By: Dr. Sumeya Ghanawy AL Najar

Done By:

Ahmed Ali Ward

Zomorod Razzaq Jaleel

Muslim Raheem Guheid

Hiba Saeed Yas

Content

Dedicated to

“To God Almighty my creator, my source of inspiration , wisdom, knowledge and understanding .

To the city that started off the first letter .My father , the biggest supporter, who keeps saying "I am proud of you" in my failures before my successes .

My mother who helped me in step by step to reach this point .

For my professors who mould us to become capable .

The professor who, despite his absence, are present among us, Dr. Muslim Qandil and Dr. Ali Jaffer .

To my best friends who make hard life easier .

Dedication to myself and its ability to withstand circumstances. "

Abstract

Missed abortion (MA) is a specific type of miscarriage, and refer to embryonic or fetnaturally. The Missed abortion may cause maternal morbidity, including endometrial injury,coagulativedysfunction,depression,andanxiety.Presently,multiple etiologic factors including parental chromosomal abnormalities, immunological factors, endocrine disorders, uterine abnormalities, hereditary thrombophilia, infections, and environmental factors have been identified for Missed abortion. Women with Missed abortion may have no obvious symptoms,Clinical manifestations of missed abortion include absence of fetal heart tone, discharge from the breasts and diminution of their size, general fatigue, fever, and sometimes skin itch. Diagnosis of missed abortion is based upon the results of general and gynecologic examinations.in this research we try to estimate the percentage of risk factors for missed abortion in Nasiriyah , Iraq especially recurrent missed abortion . By Retrospective study is conducted in the Obstetrics and Gynecology department of bint alhuda Teaching Hospital in nasiriyah. The data is collected by using a questionnaire from patients.the result revealed About 38(44.7%)women have history of previous abortion , where missed miscarriage contribute to 47.4% of these abortions . About 21.7% from total number of cases have previous history of missed abortion. In this study, we found that there are several factors that affect or related to missed abortion.

Intrudction

Abortion is a pregnancy loss that occurs at less than 20 weeks of gestation. Miscarriage (spontaneous abortion) occurs in the absence of any medical or surgical intervention. The incidence of recognized miscarriage is commonly cited as 15% to 25%, with 80% occurring during the first 12 weeks of pregnancy. This rate of miscarriage may be even higher because losses that occur at 4 to 6 weeks of gestation may be misinterpreted by the patient and her physician as a delayed menstrual[1].

Missed abortion (MA), also known as silent miscarriage, usually occurs when an embryo or fetus dies, but the body does not recognize the pregnancy loss [1]. Missed abortion is very common complication, which affects ~15% of all clinically recognized pregnancies. [2] The loss of a pregnancy is often distressing for women and their partners, with adverse effects on their social and psychological wellbeing [3].

Etiology

In the first trimester, embryonic causes of spontaneous abortion are the predominant etiology and account for 80-90% of miscarriages

One study suggested that an inflammatory reaction occurs in normal pregnancy and may be disrupted during miscarriage.[4]

1. Genetic abnormalities within the embryo (ie, chromosomal abnormalities) are the most common cause of spontaneous abortion and account for 50-65% of all miscarriages .single gene defects, and multifactorial factors account for 3.5-5% of the causes of recurrent missed miscarriage. In about 4% of couples with recurrent miscarriage, one partner carries either a balanced reciprocal translocation, in which there is an exchange of two terminal segments from different chromosomes, or a robertsonian translocation, in which there is centric fusion of two acrocenteric chromosomes The most common single chromosomal anomaly is 45,X karyotype, with an incidence of 14.6%. Trisomies are the single largest group of chromosomal anomalies and account for approximately one half of all anomalies associated with

miscarriage. Trisomy 16 is the most common trisomy found. Approximately 20% of abnormalities are triploidies .Teratogenic and mutagenic factors may also play a role in spontaneous abortion, but quantification is difficult.[5]

2. Maternal causes of spontaneous miscarriage include the following:

A. Genetic: Maternal age is directly related to the aneuploidy risk (>30% in people aged 40 y). Couples with recurrent miscarriages have a 2-3% incidence of a parental chromosomal anomaly (ie, balanced translocation).

B. Structural abnormalities of the reproductive tract include the following: Congenital uterine defects (particularly uterine septum), fibroids, cervical incompetence.

C. Acute maternal factors include the following: Corpus luteum deficiencyAnd Active infection (eg, rubella virus, cytomegalovirus, Listeria infection, toxoplasmosis, malaria, brucellosis, human immunodeficiency virus (HIV), dengue fever, influenza, as well as vaginal infection with bacterial vaginosis [6,7]

D. Endocrine Factors

Thyroid autoantibodies are associated with an increased incidence of spontaneous abortion, even in the absence of clinical hypothyroidism. In women with type 1 diabetes, the degree of metabolic control in early pregnancy has been found to be related to an increased risk of spontaneous abortion and major congenital malformation.

E. Environmental Factor

The miscarriage risk increases in a linear fashion with the number of cigarettes smoked per day. Both miscarriage and fetal anomalies may result from frequent, high doses of alcohol during the first 8 weeks of pregnancy. Radiation administered at therapeutic doses to treat cancer may be an abortifacient. However, exposure to most diagnostic procedures that expose the patient to less than 5 rads does not increase the risk of miscarriage.The rates of spontaneous abortion and birth defects increase when the pregnancy is exposed to over 20 rads.

F. Immunologic Factors

There are a number of genetic disorders of blood coagulation that may increase the risk of both arterial and venous thrombosis. Among thrombophilias, only antiphospholipid antibody syndrome has consistentlybeen significantly associated with increased risk of early spontaneous abortion.[6]

Presentation

It’s common to have no symptoms with a missed miscarriage. Sometimes there may be :

- spotting
- vaginal bleeding
- brownish vaginal discharge .
- severe abdominal pain or cramping
- mild to severe back pain .
- Signs and Symptoms of pregnancy disappear .
- Fundal height dose not increase in size .
- Breast may secret milk due hormonal changes .
- FHR are absent
- No fetal movement.[7]

Diagnosis

Radiographic features

Ultrasound

Ultrasound diagnosis of miscarriage should only be considered when either a mean gestation sac diameter is ≥25 mm with no obvious yolk sac or a fetal pole with a crown rump length of ≥7 mm without evidence of fetal cardiac activity .

Transvaginal ultrasound is the mainstay in the diagnosis of miscarriage. Once the diagnosis of miscarriage is made based on the above ultrasound criteria, the patient can then be offered different types of management depending on their clinical status and patient's choice.[8]

Management

1. around 95% success rate, surgical evacuation is regarded as the standard treatment for missed abortion, which had been widely performed all over the world in the past 50 year [9]. However, the costs of surgery and hospitalization, as well as the complications associated with surgery and anaesthesia are a major unresolved concern. Besides infection and bleeding, decreased fertility caused by intrauterine adhesions may be unacceptable for women with missed abortion, who have not yet fulfilled their motherhood desires. Some studies have thus suggested that expectant or medical management might be more suitable instead of surgical evacuation[10,11]
2. Expectant management has been reported with unpredictable success rate ranging from 25–76%5–7. Waiting for spontaneous expulsion of the products of conception would waste much time, during which women may suffer uncertainty and anxiety[12]. When additional surgical evacuation is needed owing to failure, they may suffer from an emotional breakdown. It is thus not recommended for missed early miscarriage due to the risks of emergency surgical treatment and blood transfusion[13,14].
3. For medical management, misoprostol is the drug of choice. Surgical management is dilatation and curettage. Inclusion criteria patient's preference ,haemodynamically unstable ,persistent excessive bleeding ,evidence of infected retained tissue ,suspected gestational trophoblastic disease ,unsuccessful expectant or medical management and recurrent miscarriage, to assess for cytogenetics [15,16].

Aims of study

To estimate the percentages of risk factors for missed abortion in Nasiriyah , Iraq (age,consanguinity,Family history,parity,chronic medical inless, History of H Mole, Ectopic pregnancy, Smoking and Alcohol) and especially recurrent missed abortion among the study groups.

Methodology

Retrospective study is conducted in the Obstetrics and Gynecology department of bint alhuda Teaching Hospital in Nasiriyah , during 2020_2021. The data is collected by using a questionnaire. The questionnaire is filled by taking the information from the patient . The information obtained includes the following :

Age, Gravida ,Relative ,Previous Abortion. History of H Mole, Ectopic pregnancy, Smoking ,Alcohol ,Occupation,Baby with Congenital anomaly,
Immune diseases(Antiphospholipid syndrome,SLE)
At which gestational age.
Endocrine dz: DM and Thyroid disease.
Heart disease .
Family history .
Genetic study.

Statistical Analysis

The collected data was checked for its completeness , entered, edited, cleaned and analyzed by the available computer software facility of Microsoft office Excel.
The percentage of risk factors of missed abortion was calculated as [total number of patients with missed abortion and how have history of previous missed abortion / Total number of missed abortion included during the study period]*100 .

Results

- The total number of missed abortion during the study period in Bint-Alhuda Teaching Hospital were 85 case.

  About 24(28.2%)of women with missed abortion in age range from 35-39 years, and is most common than other age group. Table 1.
- About 38(44.7%)women have history of previous abortion , where missed miscarriage contribute to 47.4% of these abortions .
- About 21.7% from total number of cases have previous history of missed abortion .Fig 2.
- we found that 22(25.8%) women have family history of abortion About 5(5.8%) have history of hypertension,3(3.5%) with history of DM. only 2(28.2%) of cases underwent genetic study Table(2)
- 24 (28.23%)women was relative. Fig (4).

Table 1-Distribution of study group according to age group (n=85)

Maternal Risk factor		No	%
Age group	< 20	11	13%
	20 -24	13	15.20%
	25-29	18	12.10%
	30- 34	13	15.20%
	35-39	24	28.20%
	>40	6	7%
	Mean	30	

Table 2-Distribution of study group according to DM, HT and other maternal risk factor

Family history of abortion		22	25.80%
Previous History of abortion	Missed abortion	18	21.70%
	None missed	20	23.50%
Gestational age	1st trimester	62	72.94%
	2nd trimester	23	27.05%
Relative couples	Yes	24	28.20%
	No	61	71.20%
Diabetes		3	3.52%
Hypertension		5	5.88%
Anti phospholipids		2	2.35%
Fetal congenital anomalies		3	3.52%
Women do genetic study		2	2.35%

Table 3-Distribution of study group according to Parity and gravida

Parity	0	22	25.90%
	1	11	12.90%
	2	14	16.50%
	3	12	14.10%
	4+	26	32%
Gravida	1	14	16.40%
	2	12	14.20%
	3	13	15.30%
	4+	46	55.20%

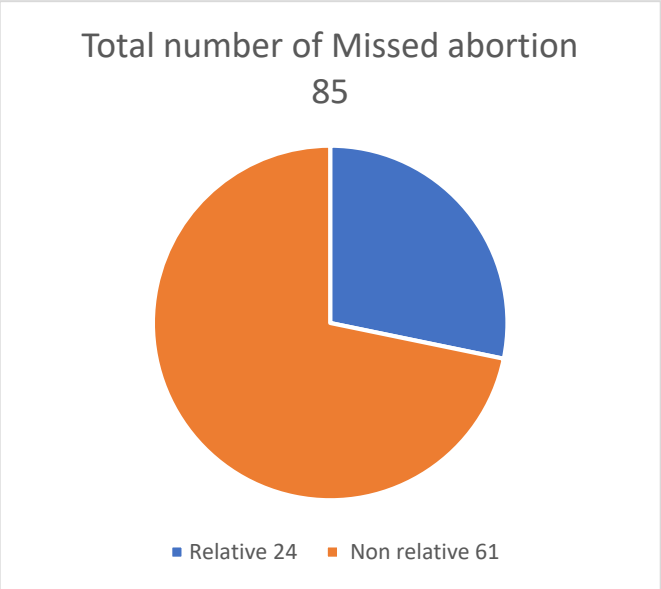

Fig 1-Distribution of study group according to Percentage of Relative and non Relative.

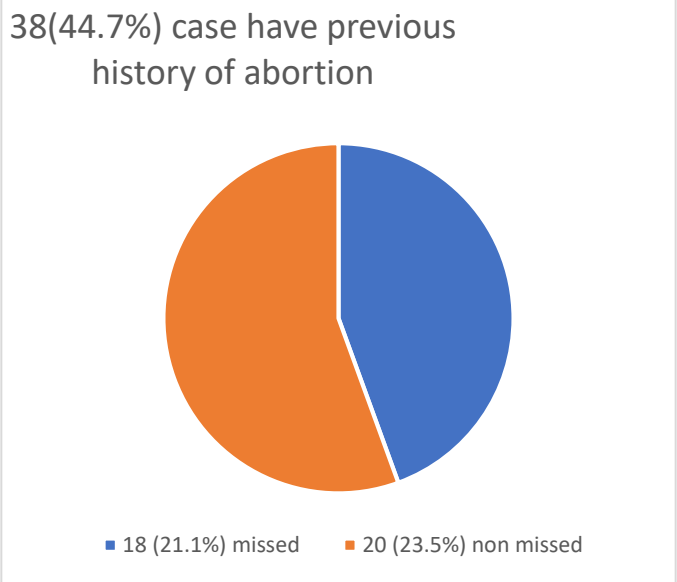

fig. 2 Percentage of previous missed abortion and non missed among study group

Discussion

The missed abortion is one of the most common types of early pregnancy loss (EPL), and several reasons have been identified for the failure of these pregnancies. In this study, we found that there are several factors that affect or related to missed abortion , and one of these important factors is age, and According to the results of the present study, the statistically higher average age was observed in the case group (35-39) (28.2%) compared to the other age group suggesting the age is a risk factor for MA. This data reconfirmed findings from previous studies,[18–20] which demonstrated that age was strongly associated with MA occurrence. This might be because in older pregnancy ovaries, uteri are reduced in function, and the egg quality drops, causing chromosomal changes.[19,20].Chromosome abnormality is an important cause of missed abortion; villi chromosome abnormality rate has nothing to do with the number of missed abortion; pregnant woman with age≥35 years old is risk factor of the villi chromosome abnormality [21].

Also we found there is increase missied abortion cases among women with high parity,were 32% 0f cases seen in women with Para 4 and more. recent study done by (Cohain et al., 2017) concluded that the rate of miscarriage increases according to women's parity. In contrast to other study , they found that the proportion of all registry-identified miscarriages seen among nulliparous women (43.7% in 1998, 49.6% in 2016) was higher than the proportions among women with history of one delivery (26.4% in 1998, 26.7% in 2016) or more than one delivery (29.8% in 1998, 23.8% in 2016). Thus, if nulliparous and parous women are compared, less than half of all registry-identified miscarriages occurred among nulliparous women [22].

The genetic influnce may play role in missed abortion as we found that 25.8% have familiy history and 28% are relative couples .

2(28.2%) of cases underwent genetic analysis and both of them were have 45XO, and this mean the genetic abnormality are deeply implicated in missed abortion.

Previous abortion in genral and prevous missed abortion may also play role as risk factor as we found that 47% have history of abortion,23% of them have history of missed abortion.

Also we found there is some case have history of Endocrine diseases such as Dm in about 4 % , In women with type 1 diabetes, the degree of metabolic control in early pregnancy has been found to be related to an increased risk of spontaneous abortion and major congenital malformation[6].

There are a number of disorders of blood coagulation that may increase the risk of both arterial and venous thrombosis.Among thrombophilias, only antiphospholipid antibody syndrome has consistently been significantly associated with increased risk of early spontaneous abortion[6] where we found that 2% have history of antiphosholipd syndrome.

Other factor in our questionnaire (History of H Mole, Ectopic pregnancy, Smoking and alcohol) were negative and didn't register in tables .

- Limitation of study inability to collect enough samples due to the Corona pandemic, in addition to that, the information was difficult to obtianed due to the nature of society in the city of Nasiriyah, in addition to the lack of previous studies on this subject in Nasiriyah.

Conclusions

Through our research, we were able to find out that there are several factors that can affect the miscarriage, the most important of which is the increase in age .

Also we found there is increase in missied abortion cases among women with high parity.

Other factors that play a rule include : the presence of a family history and history of previous abortion whether the couples are relatives or not, and the presence of chronic diseases.

Recommendation

In the future we need large study to assess these risk factor and other factor that may play a role in missed abortion.

Since the most common cause of missed abortion is chromosomal abnormality,we need a genetic center in Thi-Qar government to assess the chromosomal abnormilities among women with abortion in more accurate manner.

Acknowledgement

We would like to thank the esteemed gynecology specialist at Thi-Qar university collage of medicine Dr. Sumeya Ghanawy AL Najar who gave us the support and opportunity to work on this project.

References

[1]Jie L. Obstetrics and Gynecology. 7th ed.2011;People's Medical Publishing House, Beijing:84.

[2] Practice Committee of the American Society for Reproductive MedicineEvaluation and treatment of recurrent pregnancy loss: a committee opinion. Fertil Steril 2012;98:1103–11.

[3]Jurkovic D, Overton C, Bender-Atik R. Diagnosis and management of first trimester miscarriage. BMJ 2013;346:f3676.

[4]Calleja-Agius J, Jauniaux E, Pizzey AR, Muttukrishna S. Investigation of systemic inflammatory response in first trimester pregnancy failure. Hum Reprod. 2011 Nov 29].

[5] Hu H, Yang H, Yin Z, et al. Chromosome examination of missed abortion patients. Zhonghua Yi Xue Za Zhi 2015;95:2837–40.

[6] Casanova R.,Chuang A., Goepfert A., Hueppchen N., Wiess P.,Beckmann C., Ling F., Herbert W., Laube D., Smith R., Beckmann And Ling'sObstetricsAndGynecology,8thEd.,Walterskluwer,2019;Pp(426,427,428).

[7] Martinez-Ruiz A, Sarabia-Meseguer MD, Perez-Fornieles J, et al. Presentation of missed abortion. Clin Biochem 2014;47:844–7 .

[9]Bernard KG, Cooperberg PL. Sonographic differentiation between blighted ovum and early viable pregnancy. AJR Am J Roentgenol. 1985;144 (3): 597-602. AJR Am J Roentgenol (abstract) - Pubmed citation.

[10]Joint study of Royal College of general practitioner and Royal College of obstetrician and gynaecologist. Induced abortion operations and their early sequelae. J R Coll Gen Pract. 35, 175–180 (1985). [PMC free article] [PubMed].

[11]Chia KV, Ogbo VI. Medical termination of missed abortion. J Obstet Gynaecol. 2002;22:184–186. doi: 10.1080/01443610120113382. [PubMed] [CrossRef] [Google Scholar].

*[**12**]Petrou S, Trinder J, Brocklehurst P, Smith L. Economic evaluation of alternative management methods of first-trimester miscarriage based on results from the MIST trial. BJOG. 2006;113:879–889. doi: [**13**].1111/j.1471-0528.2006.00998.x. [PubMed] [CrossRef] [Google Scholar].*

*[**14**] Jukovic D, Ross JA, Nicoladies KH. Expectant management of missed miscarriage. Br J Obstet Gynaecol. 1998;105:670–671. doi:1111/.*

*[**15**]j.1471-0528.1998.tb10184.x. [PubMed] [CrossRef] [Google Scholar]*

*[**16**]Neilsen S, Hahlin M. Expectant management of first-trimester spontaneous abortion. Lancet. 1995;345:84–86. doi: 10.1016/S0140-6736(95)90060-8. [PubMed] [CrossRef] [Google Scholar]*

*[**17**]Trinder J, Brocklehurst P, Porter R et-al. Management of miscarriage: expectant, medical, or surgical? Results of randomised controlled trial (miscarriage treatment (MIST) trial). BMJ. 2006;332 (7552): 1235-40. doi:10.1136/bmj.38828.593125.55 - Free text at pubmed - Pubmed citatio.*

*[**18**]Zhang BY, Wei YS, Niu JM, et al. Risk factors for unexplained recurrent spontaneous abortion in a population from southern China. Int J Gynaecol Obstet 2010;108:135–8 .Cited He .*

*[**19**]Farr SL, Schieve LA, Jamieson DJ. Pregnancy loss among pregnancies conceived through assisted reproductive technology, United States, 1999–2002. Am J Epidemiol 2007;165:1380–8Cited Her .*

*[**20**]Qi ST, Liang LF, Xian YX, et al. Arrested human embryos are more likely to have abnormal chromosomes than developing embryos from women of advanced maternal age. J Ovarian Res 2014;7:65.*

*[**21**]Chromosome examination of missed abortion patients Haomei Hu, Hua Yang, Zhenhui Yin, Lu Zhao Zhonghua yi xue za zhi 95 (35), 2837-2840, 2015.*

*[**22**]https://academic.oup.com/humrep/article/34/11/2120/5611272.*