INTRODUCTION AND AIM OF WORK

The availability of effective medical therapies for inducing abortion has created new options for women who want to avoid surgery. Misoprostol is the most commonly used such agent. The advantages of misoprostol are its cost-effectiveness, low incidence of side effects when given intravaginally, stability at room temperature, and ready availability. However, it is not approved by the United States Food and Drug administration for treatment of early pregnancy failure ***(Graziosi et al., 2005)***.

The efficacy of misoprostol for medical managenemt of pregnancy failure ≤12 weeks of gestation was illustrated in a large, well-designed trial in which 652 women with missed, incomplete or inevitable abortion were randomly assigned 3:1 to receive 800 mcg misoprostol intravaginally or undergo vacuum aspiration**.** Misoprostol was repeated two days later (day 3) if expulsion was incomplete by sonographic examination; vacuum aspiration was performed on day eight if expulsion was still incomplete. In medically managed patients, complete expulsion occurred in 71 percent by day three and 84 percent by day eight ***(Zhang et al., 2005)***.

Pregnancy duration did not affect the rate of successful expulsion, but successful expulsion was lower with anembryonic gestation compared to incomplete or inevitable abortion (81 versus 93 percent). Both medical and surgical therapies were safe, effective, and acceptable to patients ***(Chung et al., 1999).***

The efficacy of medical treatment with prostaglandins depends upon both the dose and route of administration: there is no consensus on the optimal choice for either. A low success rate (13 percent) was reported with the use of a single oral dose of 400 mcg misoprostol ***(de Jonge et al., 1995),*** whereas the same dose given multiple times was associated with a 50 to 70 percent success rate ***(Chung et al., 1997).*** The expulsion rate increased to 70 to 90 percent with vaginal administration and a 600 to 800mcg dose ***(Muffley et al., 2002)***.

This may be due to the local effect of misoprostol on the uterine cervix, the high drug concentration achieved in uterine tissue, and the increased bioavailability with vaginal administration ***(Khan et al., 2004)***.

AIM OF THE STUDY

This study is designed to evaluate the efficacy, tolerability and side effects of 800µg single dose jelly moistened vaginal misoprostol in termination of first trimesteric missed abortion.

SPONTANEOUS ABORTION

Spontaneous abortion, which is the loss of a pregnancy without outside intervention before 20 weeks' gestation, affects up to 20 percent of recognized pregnancies. Spontaneous abortion can be subdivided into threatened abortion, inevitable abortion, incomplete abortion, missed abortion, septic abortion, complete abortion, and recurrent spontaneous abortion. Ultrasonography is helpful in the diagnosis of spontaneous abortion, but other testing may be needed if an ectopic pregnancy cannot be ruled out. Chromosomal abnormalities are causative in approximately 50 percent of spontaneous abortions; multiple other factors also may play a role. Traditional treatment consisting of surgical evacuation of the uterus remains the treatment of choice in unstable patients ***(Deutchman et al., 1993)***.

When patients are allowed to choose between treatment options, a large percentage will choose expectant management. Expectant management of missed spontaneous abortion has variable success rates, but medical therapy with intravaginal misoprostol has an 80 percent success rate. Physicians should be aware of psychologic issues that patients and their partners face

after completing a spontaneous abortion. Women are at increased risk for significant depression and anxiety for up to one year after spontaneous abortion. Counseling to address feelings of guilt, the grief process, and how to cope with friends and family should be provided ***(Deutchman et al., (2000)***.

"Spontaneous pregnancy loss" has been recommended to avoid the term "abortion" and acknowledge the emotional aspects of losing a pregnancy. Another emotionally neutral term is "early pregnancy failure" (***Scroggins et al., 2000)***.

For clinical purposes, spontaneous abortion often is subdivided into threatened abortion, inevitable abortion, incomplete abortion, missed abortion, septic abortion, recurrent spontaneous abortion, and complete abortion *(Table 1)* ***(Creinin et al., 2001).***

Table (1): Spontaneous Abortion: Definitions of Subcategories

Complete abortion: all products of conception have been passed without the need for surgical or medical intervention
Incomplete abortion: some, but not all, of the products of conception have been passed; retained products may be part of the fetus, placenta, or membranes
Inevitable abortion: the cervix has dilated, but the products of conception have not been expelled
Missed abortion: a pregnancy in which there is a fetal demise (usually for a number of weeks) but no uterine activity to expel the products of conception
Recurrent spontaneous abortion: three or more consecutive pregnancy losses
Septic abortion: a spontaneous abortion that is complicated by intrauterine infection
Threatened abortion: a pregnancy complicated by bleeding before 20 weeks' gestation

Incidence

Approximately 20 percent of pregnant women will have some bleeding before 20 weeks' gestation, and roughly one half of these pregnancies will end in spontaneous abortion. Up to 20 percent of recognized pregnancies will end in miscarriage. However, when

women were followed with serial serum human chorionic gonadotropin (hCG) measurements, the actual miscarriage rate was found to be 31 percent. Many pregnancies are lost spontaneously before a woman recognizes that she is pregnant, and the clinical signs of miscarriage are mistaken for a heavy or late menses ***(Creinin et al., 2001).***

Diagnosis

Threatened abortion is defined by vaginal bleeding in a woman with a confirmed pregnancy. First-trimester bleeding in a pregnant woman has an extensive differential diagnosis *(Table 2)* and should be evaluated with a full history and physical examination .Laboratory tests should include complete blood count, blood typing and Rh testing, and quantitative serum hCG testing. Gonorrhea and chlamydia testing also should be considered. Ultrasonography is crucial in identifying the status of the pregnancy and verifying that the pregnancy is intrauterine. When transvaginal ultrasonography reveals an empty uterus and the quantitative serum hCG level is greater than 1,300 mIU per mL, an ectopic pregnancy should be considered. When transabdominal ultrasonography is performed, an empty uterus should raise suspicion of an ectopic pregnancy if quantitative hCG levels are greater than 2000 mIU per mL. A uterus found to be empty on

ultrasound examination may signal a completed spontaneous abortion, but the diagnosis is not definitive until ectopic pregnancy is excluded. If an ultrasound examination finds an intrauterine pregnancy, ectopic pregnancy is unlikely, although heterotopic pregnancy has been reported (i.e., simultaneous intrauterine and ectopic pregnancies). The risk for spontaneous abortion decreases from 50 to 3 percent when a fetal heartbeat is identified on ultrasound examination (***Deutchman et al.,2005).***

Table (2): Differential Diagnosis of First-Trimester Vaginal Bleeding

Cervical abnormalities (e.g., excessive friability, malignancy, polyps, trauma)
Ectopic pregnancy
Idiopathic bleeding in a viable pregnancy
Infection of the vagina or cervix
Molar pregnancy
Spontaneous abortion
Subchorionic hemorrhage
Vaginal trauma

When the clinical examination reveals a dilated cervix, spontaneous abortion is inevitable. However, cervical evaluation is not reliable for distinguishing between complete and incomplete abortion. Transvaginal

ultrasonography should be performed and is extremely reliable for finding products of conception, with a 90 to 100 percent sensitivity and 80 to 92 percent specificity (***Wong et al., 2002)***.

A missed spontaneous abortion usually is diagnosed by routine ultrasonography or when an ultrasound scan is obtained because the symptoms and physical signs of pregnancy are regressing. *Figure 1* presents an algorithm for diagnosing spontaneous abortion (***Scroggins et al., 2000)***.

Diagnosis of Spontaneous Abortion:

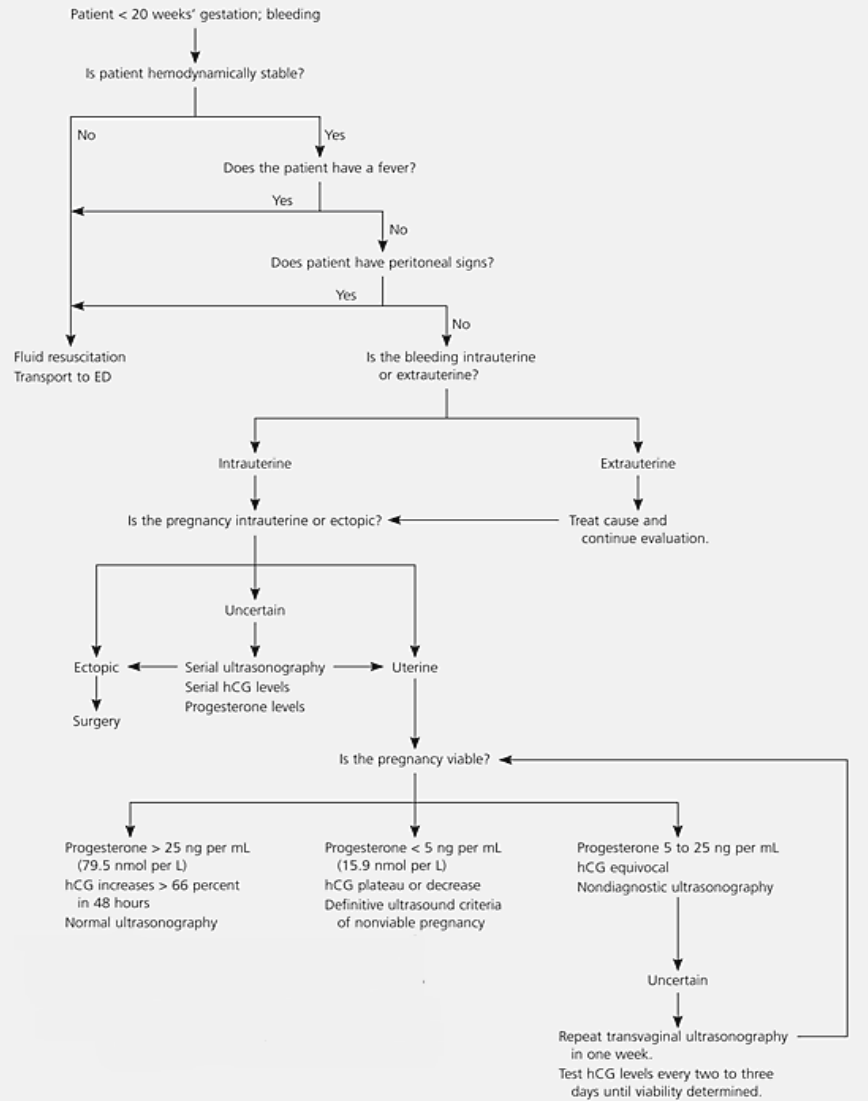

Fig. (1): Algorithm for the diagnosis of spontaneous pregnancy loss (ED = emergency department; hCG = human chorionic gonadotropin.)

Adapted from Scroggins KM, Smucker WD, Krishen AE. Spontaneous pregnancy loss: evaluation, management, and follow-up counseling. Prim Care 2000;27:157.

Etiology and Risk Factors

Chromosomal abnormalities are a direct cause of spontaneous abortion. One meta-analysis found that a chromosomal abnormality occurs in 49 percent of spontaneous abortions. Autosomal trisomy was the most commonly identified anomaly (52 percent), followed by polyploidy (21 percent) and monosomy X (13 percent). Most chromosomal abnormalities that result in spontaneous abortion are random events, such as maternal and paternal gametogenesis errors, dispermy, and nondisjunction. Structural abnormalities of individual chromosomes (e.g., translocations, inversions) were reported in 6 percent of women who had spontaneous abortions, and approximately one half of these abnormalities were inherited. Chromosomal abnormalities are more likely to be associated with recurrent spontaneous abortion, but are uncommon even in that instance (4 to 6 percent) (***Goddijn and Leschot, 2000)***.

Risk factors for spontaneous abortion are listed in. However, other factors are notable for their lack of association with miscarriage. One study that examined the influence of stress on early pregnancy loss failed to find a clear association. Marijuana use, likewise, has not been proven to increase the risk for spontaneous abortion.

Sexual activity also does not elevate risk in women with uncomplicated pregnancies (***Rasch, 2003, Donders et al., 2005, and Li et al., 2003)***.

MANAGEMENT OF ABORTION

Abortion can be performed either medically or surgically. A randomized comparison of the efficacy and acceptability of these techniques, showed that medical abortion seemed to be slightly effective and acceptable than surgical techniques ***(Creinin, 2000).***

I. Surgical Technique:

1. Dilatation and curettage:-

Surgical abortion through the cervix is performed by first dilating the cervix and then evacuating the products of conception by mechanically scraping out the contents (sharp curettage), by vacuum aspiration (suction curettage), or both. The likelihood of complications, including uterine perforation, cervical laceration, hemorrhage, income-plete removal of the fetus and the placenta, and infection increases after the first trimester. For this reason, dilatation and curettage or vacuum aspiration should be performed before 14 weeks gestation. After 16 weeks dilatation and evacuation (D&E) is performed. This usually consists of wide cervical dilatation followed by evacuation of the fetal parts. With complete removal of the fetus, a large bore vacuum curette is used to remove the placenta and remaining products. A dilatation

and extraction (D&X) is similar to (D&E) except that with a D&X, part of the fetus is first extracted through the dilated cervix to facilitate the procedure ***(William, 2001).***

2. Hygroscopic dilators:

Trauma from mechanical dilatation can be minimized by using a device to slowly dilate the cervix. These devices can also be used for pre induction cervical ripening. Laminaria tents are commonly used to help dilate the cervix. They are made from the stems of laminaria digitata or laminaria japonica, a brown seaweed. The stems are cut, peeled, shaped, dried, sterilized, and packaged according to size (small, 3 to 5mm diameter; medium, 6 to 8 mm diameter; and large 8 to 10 mm diameter). The strongly hygroscopic laminaria are thought to act by drawing water from proteoglycan complexes, causing them to dissociate and thereby allowing the cervix to soften and dilate ***(Williams, 2001)***.

Synthetic hygroscopic dilators have also been used. Lamicel is a polyvinyl alcohol polymer sponge impregnated with anhydrous magnesium sulfate ***(Nicolaides and co-workers, 1983)***.

Technique for insertion: The cleansed cervix is grasped anteriorly with a tenaculum. The cervical canal is

carefully sounded, to identify the length. A laminaria of appropriate size is then inserted so that the tip rests just at level of the internal os using a uterine packing forceps or a radium capsule forceps. Later, usually after 4 to 6 hours, the laminaria will swell and thereby dilate the cervix sufficiently to allow easier mechanical dilatation and curettage. The laminaria may cause cramping ***(Williams, 2001).***

3. Suction evacuation:

The technique of suction evacuation is similar to that of conventional D & E, but instead of extracting the concepts using ovum forceps, a suction cannula connected to a negative pressure of 50-60 mmHg is moved systematically inside the uterus till complete evacuation. This method appears to be associated with less risk of uterine perforation and can be used for vesicular mole evacuation whatever the uterine size ***(Williams, 2001).***

Complications of surgical abortion:

Early abortion (under 12 weeks from the time of the last normal menstrual period) is one of the procedures carried out in hospitals and clinics throughout the world. There is little risk associated with abortion, particularly in early pregnancy. There is no evidence to suggest the