THE PROGNOSTIC VALUE OF PLASMA FIBRONECTIN LEVEL IN THREATENED ABORTION

A THESIS

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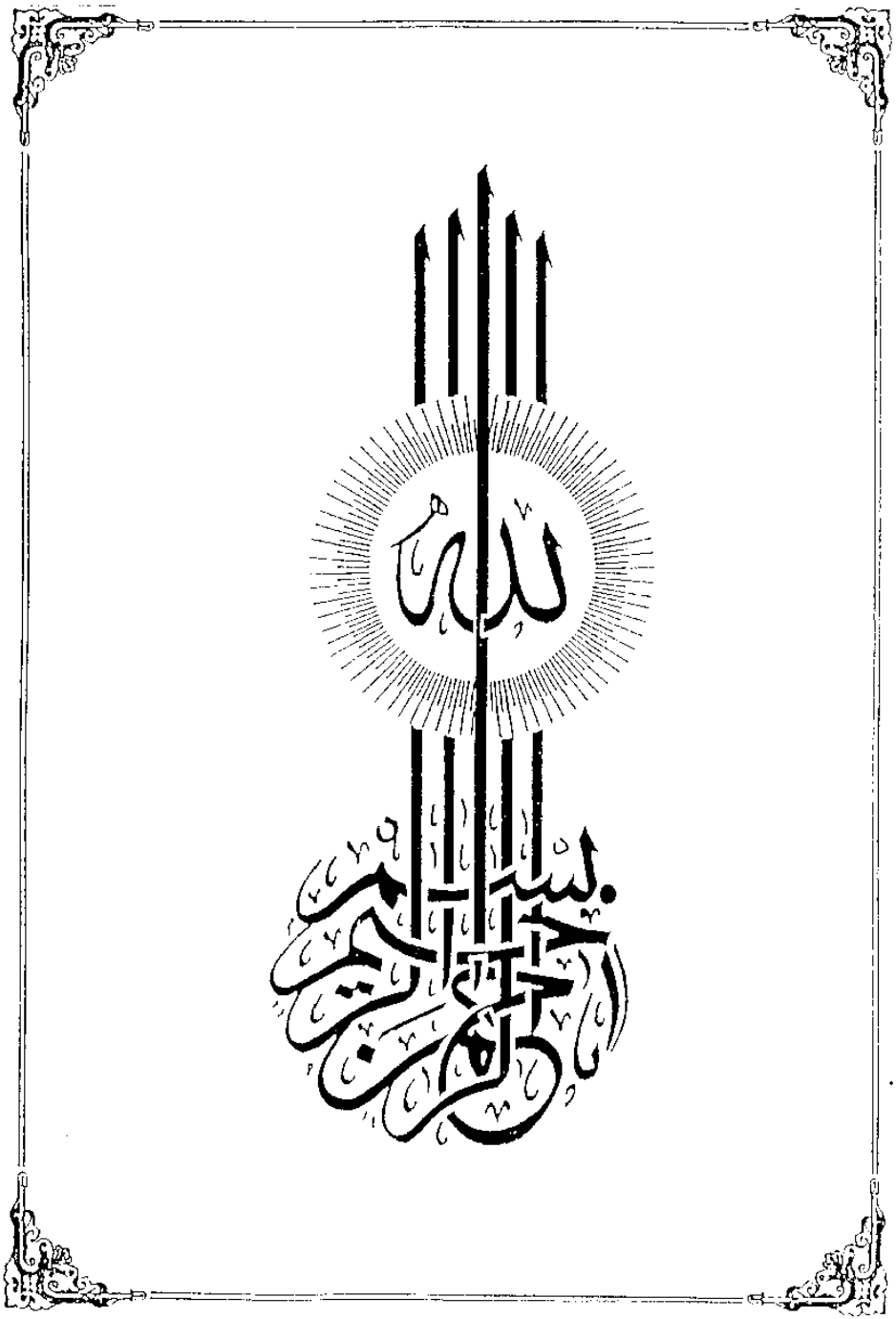
بسم الله الرحمن الرحيم

« قالوا سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم »

صدق الله العظيم
سورة البقرة ، الآية ٣٢



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CONTENTS

Introduction and Aim of the Work

INTRODUCTION

Threatened abortion is a common gynaecological problem which confronts the clinician who is asked to judge the fate of threatened abortion and to predict the outcome of pregnancy.

Abortion is the expulsion of the fertilized ovum from the uterus before the fetus has become viable. The Wold Health Organization divides abortion into early and late depending upon whether it occurs before 12 weeks or between 12–20 weeks of gestation (*Cavanagh and Comas,* 1982).

It is difficult to establish the exact incidence of abortion, a woman may abort without knowing she has been pregnant, she may not suffer severe symptoms and may interpret the abortion as delayed heavy period (*Cavanagh and Comas,* 1982).

Different parameters have been used to predict the outcome of pregnancy in cases of threatened abortion, which may be used as single or combination between more than one parameter.

These parameters include:

1. Hormonal parameters as progesterone, estrogens, human chorionic gonadotrophic hormones and human placental lactogen.
2. Non-hormonal parameters as ultrasonography, pregnancy specific B glycoprotein, pregnancy associated plasma protein A, and alphafetoprotein.

AIM OF THE WORK

The study aims at the evaluation of plasma fibronectin level that reflects endothelial changes in cases of threatened abortion in order to determine how far it will be helpful to predict the outcome of this pregnancy.

ABORTION

Definition

The World Health Organization in 1977 defined abortion as the expulsion or extraction of a fetus or an embryo from its mother weighing 500 grams or less approximately equal to 20–22 weeks of gestation (*Huisjes*, 1984).

Incidence

The incidence of abortion is 10–15% of pregnant women. More than 80% of abortions occur in the first 12 weeks of pregnancy. Chromosomal anomalies cause at least half of these early abortions. The incidence of abortion appears to increase with parity and age of the mother (*Roman et al.*, 1984).

Mechanisms of Abortion

The abortion starts by progressive deterioration of placental function following death of the foetus and reduction of steroid production which fails to maintain the integrity of the decidua, this is followed by hemorrhage into the decidua basalis and infiltration by acute inflammatory cells and ultimately external vaginal bleeding, the conceptus becomes detached totally or in part, uterine contraction and expulsion occur (*Paurestine*, 1980).

Review of Literature

Aetiology of Abortion in the First Trimester

There are different classifications concerning the aetiology of abortion in the first trimester. The most adopted one is that conducted by *Huisjes,* 1984. The causes of abortion according to *Huisjes* (1984) are:

1. Uterine causes as: Faulty mullerian duct development, retroverted uterus and leiomyomas.
2. Endocrine causes: As corpus luteum deficiency.
3. Immunological causes as disturbed maternal fetal immune tolerance, blood group incompatibilities and anti-sperms antibodies.
4. Maternal diseases as systemic lupus erythematosis, coagulation disorders, endometriosis, and diabetes mellitus.
5. Psychogenic abortion.
6. Infections as: Syphilis, brucellosis, mycoplasma infection, toxoplasmosis, candidiasis, and viral infection.
7. Intoxication, radiation and trauma.
8. Iatrogenic abortion.

So the causes of abortion in the first trimester which will discuss here are:

I. Abnormal development of the zygote.

1. Morphologic anomalies.
2. Chromosomal anomalies.

II. Uterine causes:

1. Congenital anomalies.
2. Intrauterine adhesions.
3. Retroverted uterus.
4. Leiomyomas.

III. Endocrine causes:

1. Corpus luteum deficiency.
2. Progesterone hormone deficiency.
3. Diabetes mellitus.

IV. Immunological causes.

1. Disturbed maternal-fetal immune tolerance.
2. Blood group incompatibilities.
3. Anti-sperm antibodies.

V. Maternal diseases:

1. Systemic lupus erythematosis.
2. Coagulation disorders.
3. Wilson's disease.
4. Endometriosis.

5. Infection as bacterial, protozoal, fungal and viral.

VI. Vaccination

VII. Intoxication, radiation and trauma

VIII. Iatrogenic abortion.

I. Abnormal Development of the Zygote

Abortion is frequently associated with both morphologic and chromosomal abnormalities and that both may be present in the same embryo or fetus.

A. Morphologic Anomalies

Herting and Sheldon (1943) attributed the occurrence of abortion due to morphologic anomalies to two general causes:

1. Pathological ova, with absent or objective embryos.
2. Embryos with localized anomalies.

1. Pathological Ova with Absent or Defective Embryo

i. The age of gametes, sperm and ova: It is noted that an increased incidence of abortion when insemination occurred 4 days before or 3 days after the time of shift of basal body temperature (*Guerrero et al.*, 1975).

ii. Efficiency of ovulatory mechanism: Infections, drugs and hormonal level at the time of ovulation might be expected to influence this mechanism adversely (*Poland et al.*, 1981).

iii. The age of the mother: A high incidence of first trimester abortion before the age of 18, then the incidence decreases until the age of 35 or more and then a sharp rise in abortion in advanced age (*Pergament et al.*, 1986).

iv. Effects of sperm: *Glazerman et al.* (1982) defining poly-zoospermia as a sperm count of 250 x 10^6/ml found an incidence of abortion rate 25% amongst 30 couples, they had no explanation for the reported increased incidence of abortion.

2. Embryo with Localized Anomalies

By 42 days (8 weeks of pregnancy) the formless mass of cells becomes recognizable as human being with a crown-rump length of 3 cm. This interval represents the embryonic stage of development. During this time although the embryo needs only small amount of various minerals and nutrient, new proteins and enzymes are synthesized and these are vital. The embryo survival during this very critical period depends on its genetic competence and the environmental hazard to which it may be exposed. Developmental events occur in an orderly sequence. Interruption in this sequence, presents as morphological anomalies and represents the local effect of an adverse factor, for example virus, radiation, drugs (*Poland et al.*, 1981).