IMMUNOLOGICAL ASPECTS OF HUMAN INFERTILITY

REVIEW

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By

NABIL ABD EL-GHANI MOHAMED

M. B. ; B. Ch.

Supervised by

Dr. IBRAHIUM ABOU SINNA

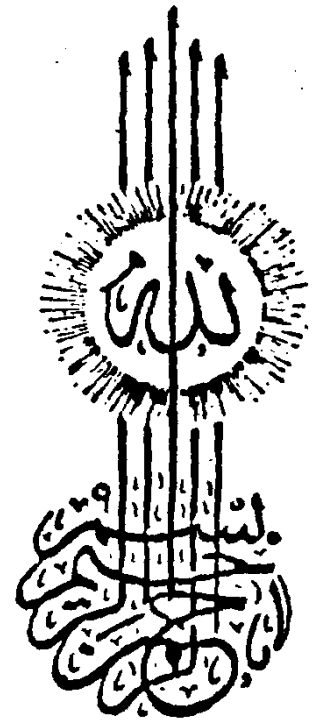
Assistant Professor of Obstetrics & Gynaecology

Dr. MOHAMED NABEGH EL-MAHLLAWI

Assistant Professor of Obstetrics & Gynaecology

Faculty of Medicine
Ain Shams University

1985



وَقُلِ اعْمَلُوا فَسَيَرَى اللّٰهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ

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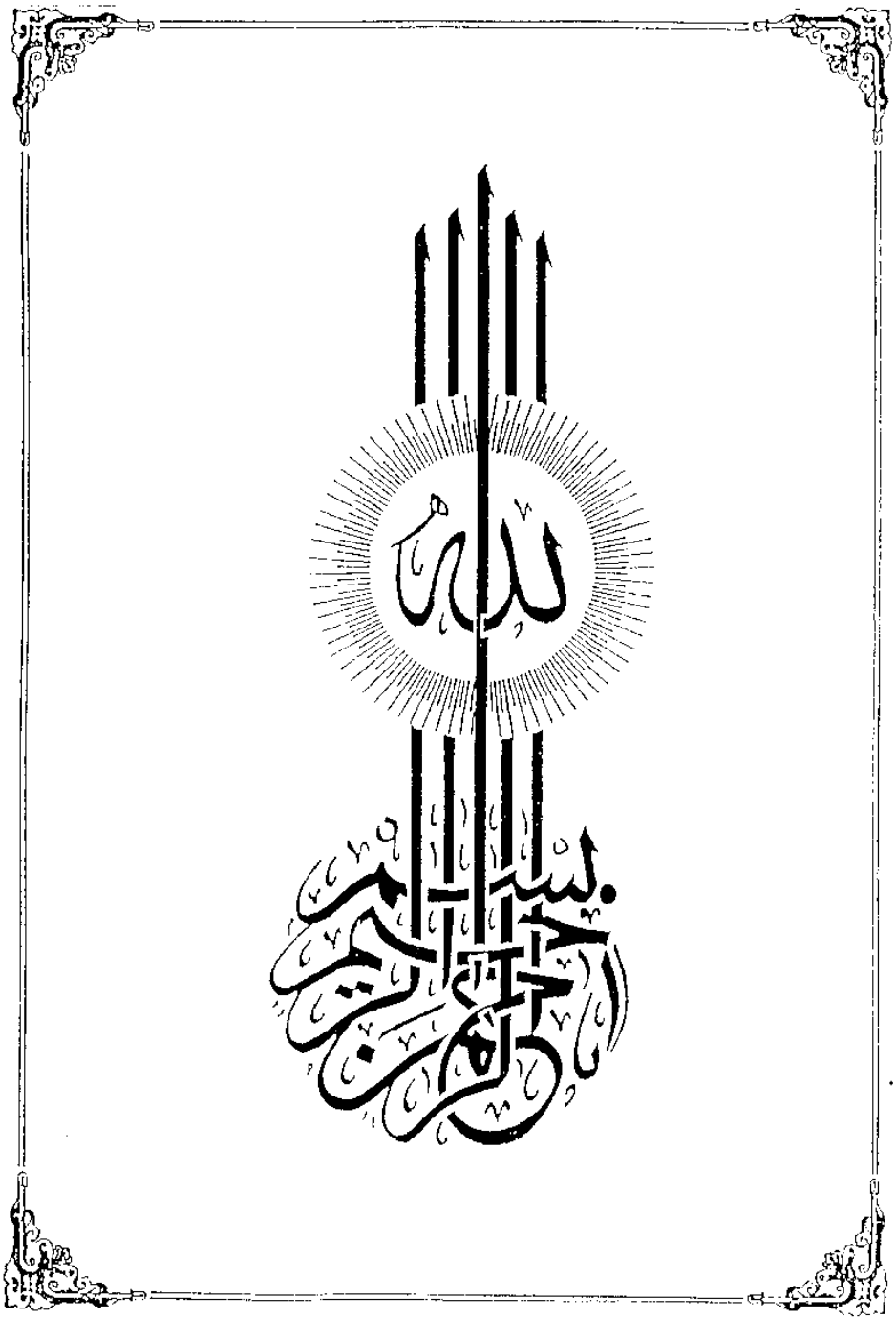

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CONTENTS

CHAPTE I

INTRODUCTION

INTRODUCTION

The management of the infertile couple presents a challenging problem as several medical specialities may be involved in the mangement of the couple. While the causes of infertility in many couples are well understood and the rational treatment is possible, many other causes are unexplained. The evaluation of such cases with unexplained infertility is difficult and need prolonged and extensive investigations.

Immunological incompatibility may be the etiology of infertility in some cases of unexplained infertility, in whome no other causes for infertility can be detected These immunological factors may result from auto or isoimmunization at the male or the female partners. Auto immunization of the male against spermatotozoa with the formation of antisperm antibodies, auto immunization of the female against ovarian or other genital antigen , or isoimmunization of the female against spermatotozoa after exposure to millions of spermatotozoa during coitus, and Formation of antisperm antibodies. These antibodies either autoantibodies or iso antibodies can impair fertility and can cause immunological infertility.

Many diagnostic approaches have been used to detect these immunological abnormalities in the infertile couple as detection of antisperm antibodies in the serum of male or female, or in the cervical mucus of the female, or in the seminal plasma in the male.

The current lines of treatment of immunological infertility are not so satisfactory, but we hope in the Future to find new sensitive methods of diagnosis and more effective lines of treatment.

THE AIM OF THE WORK

This review aims to present the available information in the field of immunological human infertility.

In the diagnosis and mangement of such problem , different evidences of immunologically mediated events will be presented . The possible types and sites of antibody response will be discussed. The clinical evidence suggestive of antibody mediated infertility will be presented. Future expectations and recommondations for the practical application of the proceedures and the future researches will be presented.

UNEXPLAINED INFERTILITY

Wallach (1984) said that, the term unexplained infertility referes to failure of a couple to establish a pregnancy after one or two years of regular sexual life. When no specific cause in either partner could be identified utilizing the currently available and acceptable diagnostic methods. Other terms that have been used interchangable with unexplained infertility include "Idiopathic infertility" or "The normal infertile couple".

Mc Bain, (1980) stated that, unexplained infertility should only be diagnosed when the female has been shown to be ovulating regularely, to have normal fallopian tube, to be free of peritubal adhesions, Fibroid, endometriosis, and to have a male partner with normal sperm production. Intercourse must have been performed frequently espically aboute the time of ovulation, and the couple must have been attemping to conceive for at least two years. Minimal investigation required to make such diagnosis must include. histological or biochemical confirmation of ovulation, Hysterosalping gram , Laparoscopy, and semen analysis. No abnormality is detected in any of these investigations.

Brown et al., (1982) concluded that, the physician must consider that during the course of an extensive and

prolonged evaluation of the infertile couple which was initially studied and found to be normal may become abnormal, for example it is not unusual for the regularly ovulating patient to become oligo ovulatory or even anovulatory when subjected to prolonged evaluation for many cycles. Similarly, in the male partner ejaculate quality may vary significantly over time, it may be necessary to repeat certain aspects of evaluation after a considerable interval to avoid the assumption that normal finding at one time will remain normal indefinity.

McBain, (1980) and Wallach, (1984) found that, the incidence of unexplained infertility vary from 10-15 % of all infertile couples. Yet this rate varies from series to series depending upon the population studied, criteria used in diagnosis, availability of laboratory facilities, and the interpretation of results of investigations.

Possible causes of unexplained infertility:

1. Anatomical causes:-

Wallach, (1984) found that cases with retroversion of the uterus or some developmental anamalies, and cases with tortusity of the fallopian tube may present as unexplained infertility.

2. Abnormalities of the cervical mucus.

Blasco, (1979) described that the cervical mucus undergoes marked cyclic variation during the ovulatory cycle that can be noticed by the female and can be used in clinical practice to detect ovulation, monitoring the ovulation induction and many other aspects.

Stirrat (1983) described a score system to evaluate The quality and adequacy of cervical mucus. A score of 8 or more is a normal score, low score means lack of estrogen or presence of progesterone, high score means good level of oestrogen " Favourable cervical mucus".

Cervical score

- Amount of mucus:

0 none.

1 scanty.

2 Dribble.

3 Cascade.

- Spinnbarkeit : "Capacity of cervical mucus to be drawn into threads".

0 none.

1 slight.

2 Moderate.

3 pronounced.

- Ferning: "ability of dry cervical mucus to exhibit an intriguing pattern of arborization with crystallization."

  0 none, amorphus mucus

  1 linear, only in few spots, no side branching

  2 partial, good ferning with branching in many parts.

  3 complete, Full ferning of all cervical mucus.

- External cervical os:

  0 Tightly closed.

  1 closed.

  2 Partially opened.

  3 Gaping.

3. Abnormalities in the Follicular development.

Jones, (1976) concluded that, those cases with abnormal Follicular development, and with unexplained infertility have almost normal hormonal state.

Sobowale, et al., (1978) observed that, the mid cycle events in repeated cycles from normal subjects and patients with unexplained infertility showed that peak oestrogen levels are quite reproduced from one cycle to the next. The wide range in peak oestrogen excretion observed in spontaneous conceptual cycles illustrates

The individual hormonal variations which may be associated with fertile cycle, Also surprisingly low peak levels of oestrogen have been reported in conceptual cycles.

4. Abnormalities in the Luteal phase;

Maxson and wentz, (1984) concluded that, Luteal phase abnormalities are uncommonly diagnosed. It is present in about 3-5 % of infertile women. It represents either deficiency in progesterone production by corpus Luteum, or an early Luteolysis , or an inappropriate endometrial response to normal progesterone concentration.

5. Ovum entrapment syndrome:

Marik, and Hulka, (1973) found that, the most reliable mid-Luteal phase markers of ovulation are plasma progesterone level, and the 24 hours urinary excretion of pregnandiol. However, the level of either are strongly suggestive but not conclusive of ovulation, as these ovulatory levels may be due to Luteinization of one or more follicles without release of it's enclosed ovum. This observation is a possible cause of unexplained infertility. It's diagnosis is possible only by Laparoscopy in the first few days after ovulation to visualize the corpus Haemorrhagicum and recognise stigma where the oocyte had being released, both are ovulatory findings.

They are absent in the Luteinized unruptured follicle syndrome.

6. The psychogenic Factors.

Fischer, (1954) tried to define psychogenic infertility as infertility which persists despit all tests being normal.

Christie et al., (1980) found that, the psychological evaluation of an infertile couple should only be indicated after the apparent exclusion of organic disease psychotherapeutic findings suggest that depression, anger, or fear can cause infertility via neuro physiological and endocrinological pathways.

Freeman., (1984) suggested that emotional stimuli can inhibit ovulation via the hypothalamic pituitary - ovarian axis, can produce tubal spasm, and cause erectile dysfunction in the male.

Ellen and Freeman, (1984) also noted that, the emotional needs of infertile couples have no one symptom. Many feelings are triggered by the experience of infertility and the treatment course, as isolation, anger, and grief. Evaluation of the emotional needs of the infertile couples is analogous to physiologic systems reviews in the medical program.