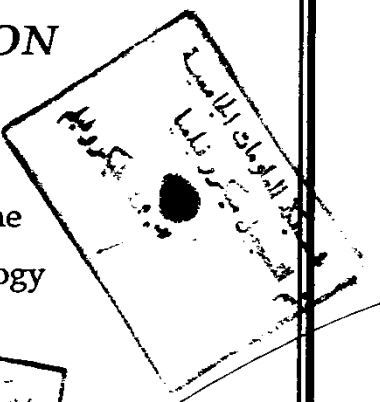
AMNIOTIC FLUID GLUCOSE CONCENTRATION AND ITS RELATION TO INTRA AMNIOTIC INFECTION



THESIS

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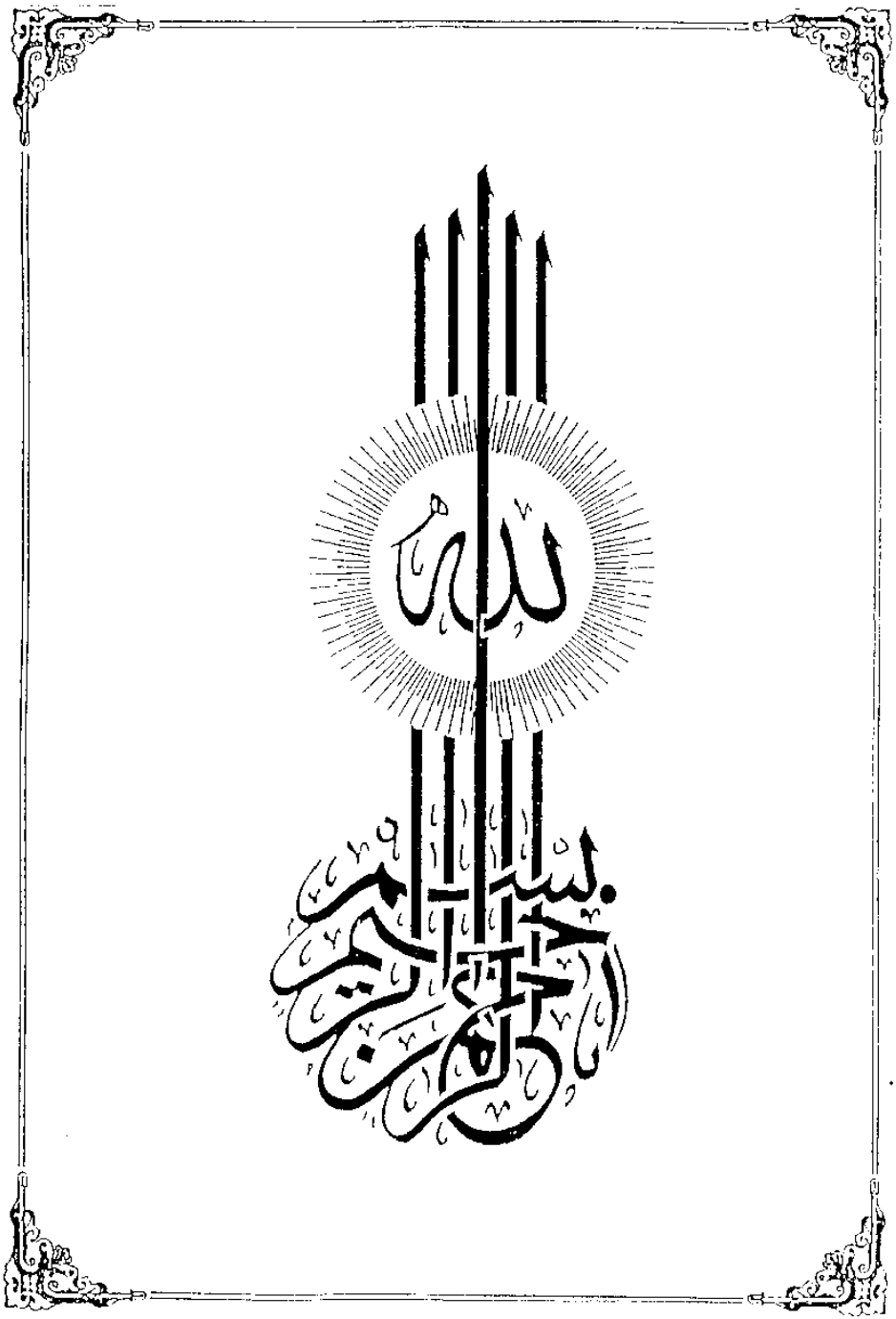

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LIST OF ABBREVIATIONS

- Medical Terminology :

AF	: Am niotic fluid.
CFU	: Colony - forming unit.
CRP	: C - reactive protein.
CSF	: Cerebrospinal fluid.
GS	: Gram's staining.
IAI	: Intra - am niotic infection.
IPF	: Intra - partum fever.
MG	: Multigravida.
PG	: Primigravida.
PNLs	: Polymorphonuclear leukocytes.
ROM	: Rupture of membranes.
PROM	: Premature rupture of membranes.
PPROM	: Preterm premature rupture of membranes.
RDS	: Respiratory distress syndrome.
WBCs	: White blood cells.

- Symbols and Measurements :

S.D.	: Standard deviation.	**n**	: Nano
"p"	: Degree of probability.	**μ**	: Micro.
"t"	: Student t test.	**m**	: Milli.
"r"	: Correlation coefficient.	**c**	: Centi.
Sig.	: Statistically significant.	**d**	: Deci.
+ ve	: Positive.	**g**	: Gram.
- ve	: Negative.	**k**	: Kilo.
%	: Percent.	**l**	: Litre.
°C	: Degree centigrade.	**u**	: Unit.
Osm.	: Osmole.	**α**	: Alpha.
mol.	: mole.	**Σ**	: Sigma (sum).

CONTENTS

Introduction

INTRODUCTION

The natural history of intraamniotic infecion has not been well established. Several authors have suggested that women with positive amniotic fluid cultures and preterm labor are more likely to be refractory to tocolysis, to rupture membranes spontaneously, and to develop clinical chorioamnionitis than women with negative amniotic fluid cultures *(Romero, et al., 1988).*

Maternal genital infection, particularly subclinical amniotic fluid infection, may cause preterm labor and a premature delivery. *(Gravett, et al., 1986).* Moreover, *(Naeye, et al., 1983),* reported that acute chorioamnionitis occured in 53 % of stillbirths and early neonatal deaths.

Prematurity is the major cause of perinatal morbidty and mortality. Intrauterine infection is an important causative factor. However, a clear understanding of the role of infection is uncertain especially by traditional tests, which are often insensitive and non specific. *(Gravett, et al., 1982).* Clinical signs and symptoms do not correlate well with the gold standard criteria of chorioamnionitis, which are considered to be either positive amniotic fluid culture or polymorphonuclear leukocytes that extend through the fetal membranes and / or the umbilical cord. *(Quinn, et al., 1987).*

(Romero, et al., 1989) demonstrated that Gram's stain examination of amniotic fluid had a senstivity of 79 % and a specificity of 99.6 % for detection of microbial invasion of the amniotic cavity. The Gram's stain

is a more rapid assessment for intraamniotic infection than the conventional aminotic fluid culture.

It is possible that the difficulty in diagnosing intraamniotic infections caused by mycoplasmas, viruses, chlamydia, anaerobes and even some aerobes may be due to inadequate sampling or improper culture techniques required for the isolation of these more fastidious microorganisms *(Quinn, et al., 1987).*

Aim Of Work

AIM OF WORK

- The purpose of this study is to assess the value of amniotic fluid glucose in the diagnosis of intraamniotic infection.

- Measurment of amniotic fluid glucose is an inexpensive and rapid test that can be performed on amniotic fluid to determine the presence of intraamniotic infection.

- Statistical correlation between amniotic fluid glucose level and intraamniotic infection confirmed by amniotic fluid cultures.

Review of Literature

Anatomy of fetal membranes & liquor

* *Gross appearance of fetal membranes.*
* *Embryological origin of fetal membranes.*
* *Microscopic picture of fetal membranes.*

**** Gross appearance of fetal membranes.***

The fetal membranes consist of an inner thin glistening tough layer called the amnion, and an outer thicker but more friable layer called the chorion.

The amnion is a thin, translucent, avascular, double - layered membrane which lies in a direct contact with the inner surface of the chorion, it lines the uterine cavity and surrounds the fetus completely as a membranous sac. The chorion is the specialized fetal envelope, which is provided by complex branching villi, in direct contact with free maternal blood, these arrangements provide for the nutrition of the ovum during the first 8 - 12 weeks of development. The amnion and chorion, although adherent, are never connected intimately and usually can be seperated easily from one another at all periods of pregnancy ***(Pritchard, et al.,1985).***

It is well established that the amnion is not a mere passive lining of the uterine cavity, but it is the main load bearing component of the chorioamniotic membrane, and its ability to resist intraamniotic pressure throughout pregnancy is due to the collagen rich connective tissue layers which are found to decrease to a minimum at parturition.

As regards the chorion it forms a good deal of connective tissue thickness of the placenta on its fetal aspect and is the structure in and through which the major branching umbilical vessels travel on the surface of the placenta *(Pritchard, et al., 1985).*

The two membranes slide upon each other readily, indeed there is only trivial connective tissue attachement between them with modest collection of fluid occasionally accumulates between them. The two merely stick together, and are not organically united. This looseness of attachement between amnion and chorion may not only provide some safety to the fetus in the course of its growth but also may permit differential sliding in the event that the chorion ruptures while the amnion remains intact in the course of labor and delivery *(Alger and Pupkin, 1986).*

** Embryological origin of fetal membranes : -*

I - Development of the amnion : -

By the time the human embryo has become implanted, the amniotic cavity has already appeared *(Hamilton, et al., 1962).*

It appears as a small cleft between the ectoderm of the inner cell mass and the trophoblast.

As the amniotic cavity enlarges, a layer of flattened cells called the amnioblast develops from the inner surface of the trophoblast and forms the roof of the amniotic cavity. At this stage, the floor of the amniotic cavity is formed by ectodermal germ layer of the embryonic disc.