

*Ain Shams University
Faculty of Medicine
Department of Anesthesia*

FETAL MONITORING AND ANAESTHESIA FOR FETAL DISTRESS

ESSAY
*Submitted for Partial Fulfillment
for the Master Degree
IN
ANAESTHESIOLOGY*

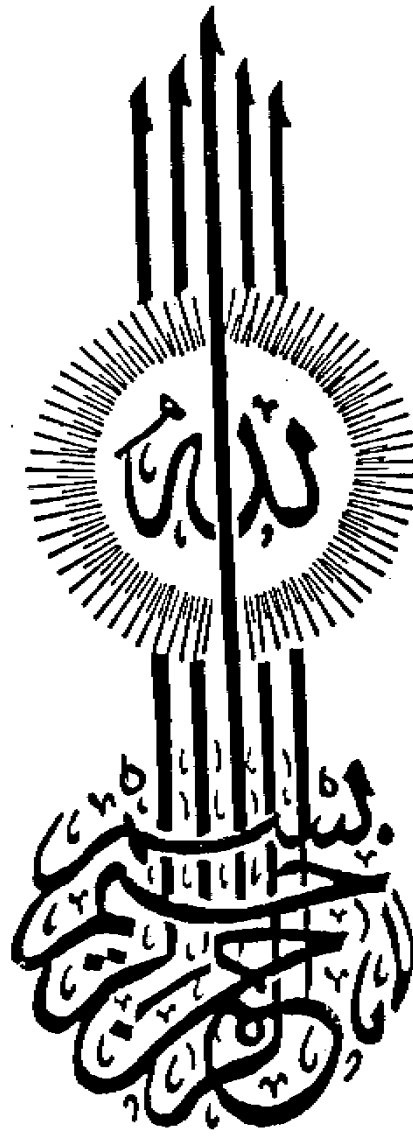
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قَالُوا سُبْحَانَكَ

لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْحَكِيمُ الْحَكِيمُ

سورة البقرة آية ٢٢

صدق الله العظيم



**DEDICATED.....
TO...**

My *Son*

ACKNOWLEDGEMENT

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INTRODUCTION

INTRODUCTION

The art and science of obstetrics has advanced to such a level of sophistication that today's physician and his patient expect not only a favorable outcome but the most favorable outcome possible. Normal survival is now possible in cases considered hopeless years ago (**Harvey and Miller, 1985**).

Commonly, on ward rounds and in antenatal clinics, the request is made "the fetus should be monitored", although the exact aim of the procedure in term of what is to be detected or prevented; is not always clear.

Over years, it has been assumed that fetal monitoring is useful; the evidence for this being derived from the fact that the indices of obstetric performance, such as perinatal mortality rate, have improved whilst the frequency has increased :

The aim of fetal monitoring is two folds :

- (A) To prevent fetal death or damage.
- (B) To prevent unnecessary intervention and so limit iatrogenic prematurity and unwanted operative delivery (**Wright, 1983**).

Over the past 15 years, there has been a marked increase in the number of techniques available to the obstetrician for accurate fetal evaluation in both antepartum and intrapartum periods. These techniques include ultrasonography, amniocentesis, fetal blood acid-base evaluation, and continuous electronic FHR monitoring. Of these techniques, only FHR monitoring has wide spread clinical applicability during the antepartum as well as intrapartum periods (**Collea and Holls, 1982**).

Chestnut, (1989) stated that not all pregnancies require invasive maneuvers in their follow-up. In the antepartum period; some conditions in particular may call for special monitoring, such as diabetes, Rh isoimmunization, hydramnios, pre-eclampsia hypertension, renal or cardiac disease, antepartum bleeding and elderly primigravida. Fetal monitoring during pregnancy gives warning not only of impending danger for the fetus, but also gives valuable aid in selecting the particular "at risk" patients for special care in labour and indeed those for whom section should rather be chosen for delivery.

Fetal monitoring has fostered the concept of the fetus as a patient. The obstetric- anaesthesiologic must consider the welfare of two

patients - mother and fetus. All anesthesiologist who care for obstetric patients should understand principles of fetal monitoring (**Chestrunt, 1989**).

The aim of this essay is to summarize different methods of fetal monitoring before, during and after delivery as well as different causes of fetal distress and their proper anaesthetic management.

ANTEPARTUM FETAL MONITORING

ANTEPARTUM FETAL MONITORING

Presently, the primary clinical methods of direct fetal assessment during the antepartum periods are antepartum fetal heart rate testing (AFHRT) and ultrasonic evaluations (Everston and Paul, 1978).

Fetal status can be evaluated by observing or testing a number of fetal parameters, some passively by the non-stress test, or biophysical profile and fetal movement count, others actively by the contraction stress test (Reece et al., 1986).

I. Fetal movement counting :

Fetal movement is one of oldest variables used in evaluation of the condition of the fetus.

Methods :

The obstetrician instructs the patient to record the frequency of fetal movements at the same time a day. He also instructs her to call if she has not noted at least five fetal movements within one or two hours periods (Chestnut, 1989).

Neldam (1980) demonstrated that maternal monitoring of fetal movements could aid the opportune delivery of infants who were at increased risk of intra uterine death. Daily recording of fetal movements can be used as an effective screening test with high sensitivity and specificity for the fetus in utero.

Cessation of fetal movements places the fetus in a high risk category and should alert the physician to the need for non stress test (**Harper et al., 1981**).

It is probable that maternal perception of FMs will be reduced earlier than ultrasound, observation and thus may represent an earlier warning of asphyxia (**Baskett and Liston, 1989**).

Clinical implications from monitoring fetal activity :

Monitoring of fetal motion in high risk pregnancies has been shown to be worthwhile in predicting fetal distress and impending fetal death. The maternal recording of perceived fetal activity is unexpensive surveillance technique which is most useful when there is chronic utero-placental insufficiency or when a still birth may be expected. The presence of active vigorous fetus is reassuring but documented fetal inactivity required a reassessment of the underlying antepartum complication.