

Ain shams university
Faculty of medicine
Department Of Obstetrics And
Gynaecology

Thesis

Submitted for partial fulfillment of master degree

"Biophysical profile versus cardiotocography"

in evaluation of feti in cases of
"pregnancy induced hypertension"

By

LAMIS TALAT MOHAMED

MB. B. CH.

Under supervision of

Prof. DR ALAA EL.DIN M.K. EL. ATRIBI

Professor of obstetrics and gynaecology

Faculty of medicine

Ain shams university

DR. HASSAN AWWAD BAYOUMY

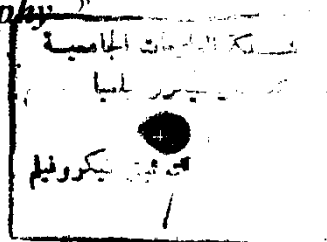
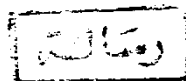
Lecturer of obstetrics and gynaecology

Faculty of medicine

Ain shams university

Cairo

(1994)



818.3
L.T

Handwritten signature of Prof. Dr. Alaa El. Din M.K. El. Atribi

50830

Handwritten signature of Dr. Hassan Awwad Bayoumy

Handwritten signature of Dr. Hassan Awwad Bayoumy



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم

صدق الله العظيم



Contents

	Page
- Introduction	1
- Aim of the work.....	5
- Review of literature	
I. Pregnancy induced hypertension:	6
☆ . Definition	
☆ . Aetiology	
☆ . Pathophysiology	
☆ . Clinical aspect and consequences.	
☆ . Management.	
II. The foetal Biophysical profile	50
III. Cardiotocography.....	72
- Subjects and methods.....	107
- Results.....	114
- Discussion.....	125
- Summary.....	136
- Conclusion.....	114
- Referances	145
- Arabic summary.....	

Abbreviations

BPP = Biophysical profile

CTG =Cardiotocography

FHR =Foetal heart rate

IUGR=Intrauterine growth retardation

PIH =Pregnancy induced hypertension

Tabels

<i>No</i>	<i>Content</i>	<i>Page</i>
1	<i>BPP scoring: Techniques and interpretation</i>	63
2	<i>BPP score: Interpretation and management.</i>	71
3	<i>Oxytocin challenge test: Definitions of test result</i>	78
4	<i>CTG scoring</i>	97
5	<i>Relationship between BPP score and Apgar score one minute</i>	114
6	<i>Relationship between BPP score and Apgar score five minutes</i>	115
7	<i>Relationship between CTG score and Apgar score one minutes</i>	116
8	<i>Relationship between CTG score and Apgar score five minutes</i>	117
9	<i>Relationship between BPP score and CTG score with Apgar scores one and five minutes using the correlation coefficient test</i>	122
10	<i>Relationship between BPP</i>	123

<i>No</i>	<i>Content</i>	<i>Page</i>
	<i>score and mode of delivery</i>	
<i>11</i>	<i>Relationship between CTG score and mode of delivery</i>	<i>124</i>

Figures

<i>No</i>	<i>Content</i>	<i>Page</i>
<i>1</i>	<i>Terms used in the study of continuous records of FHR</i>	<i>81</i>
<i>2</i>	<i>Baseline bradycardia</i>	<i>81</i>
<i>3</i>	<i>Normal baseline variability</i>	<i>82</i>
<i>4</i>	<i>Beat to beat changes and baseline variability</i>	<i>83</i>
<i>5</i>	<i>Baseline variability, band width</i>	<i>84</i>
<i>6</i>	<i>FHR accelerations</i>	<i>87</i>
<i>7</i>	<i>" " " "</i>	<i>87</i>
<i>8</i>	<i>Early FHR decelerations</i>	<i>88</i>
<i>9</i>	<i>Late FHR decelerations</i>	<i>89</i>
<i>10</i>	<i>Variable FHR decelerations</i>	<i>90</i>
<i>11</i>	<i>Relationship between BPP score and Apgar score one minute.</i>	<i>124 i</i>
<i>12</i>	<i>Relationship between BPP score and Apgar score five minutes</i>	<i>124 ii</i>
<i>13</i>	<i>Relationship between CTG score and Apgar score one minute</i>	<i>124 iii</i>
<i>14</i>	<i>Relationship between CTG score and Apgar score five minutes.</i>	<i>124iv</i>

Acknowledgement

I would like to express my deep gratitude to Professor Dr. Alaa El. Din M.K El. Atribi, Professor of Obstetrics and Gynaecology, Faculty of Medicine, Ain Shams University, for his unforgettable valuable guidance and advice althrough this work.

I am extremely indebted to Dr. Hassan Awwad Bayoumy, Lecturer of Obstetrics and Gynaecology, Faculty of Medicine, Ain Shams University, for his kind assistance, continuous support, encouragement and meticulous supervision through out the whole work.

Also, I would like to express my appreciation to all of the sonographers and neonatologists working at El. Galaa maternity hospital who helped me to show this work up.

Introduction and aim of the work

Introduction

Pregnancy induced hypertension is diagnosed

When a pregnant woman has a blood pressure of 140/90 mmHg or greater, or a rise of 30 mmHg systolic or 15 mmHg diastolic over baseline developed after 20 weeks gestation (hypertension alone)

If this patient has abnormal oedema or proteinuria or both, it is preeclampsia (Chesley L.C. 1984)

If convulsions develop on top, it is eclampsia.

(The modified classification of American colleagues of Obstetricians and Gynaecologists 1986).

Pregnancy induced hypertension is classified either mild or severe. Severe cases are diagnosed when one of the following criteria is met:

- a- Blood pressure of 160/110 mmHg or greater on two occasions with six hours apart when the patient is at rest.*
- b- Proteinuria greater than 5 gm /24 hours or 3-4+ on dipstick.*

c- *Oliguria less than 400 ml/24 hours.*

d- *Cerebral or visual disturbances. (cotton D.B st al 1988).*

The incidence of pregnancy induced hyper-tension (PIH) in the general population of pregnant patients is 5% to 7%, the single most common contributing factor is lack of prenatal care (Devoe O'shoughnessy, 1984)

There are many theories about the aetiology of PIH:

A theory about the possibility of immunological as well as endocrine and genetic mechanisms are involved in the genesis of preeclampsia, also a dietary theory about the role of calcium supplement (Sicotte 1992), a theory about the role of endothelin 1 (Clark et al 1992), and prostacyclin/thromboxane A₂, vitamine E/lipid peroxides ratio theory(Wang et al 1991a, 1991b).

Anyhow, the hallmark in PIH is vasospasm that produce pathologic changes in organ systems throughout the body (Worly 1984)

There are many factors which are noticed to be perceptuating for PIH as: adolescent and elderly

primigravida, obesity, diabetes, multiple pregnancy, essential hypertension, renal disease, and polyhydramnios. (Benedetti et al 1982).

Perinatal mortality is greatly increased secondary to high incidence of prematurity and abruptio placentae (Benedetti et al 1982)

Biophysical profile:

Foetal biophysical profile scoring is a method of antepartum assessment that is based on a survey of five discrete biophysical variables. Judging the foetal condition by dynamic study of a number of functions is the aim of the biophysical profile study using real-time ultrasonography.

The variables which are assessed include:

Foetal heart rate, foetal movement, foetal tone, foetal breathing movements and amniotic fluid volume.

This method yields a range of results that may be useful not only in the recognition of risk but also in categorization of the degree of risk (Manning 1990).

Cardiotocography (CTG):

The development of technology permitting the continuous electronic monitoring of the foetal heart rate led to the introduction of antepartum cardiotocography (CTG) by Hammacher (1966).

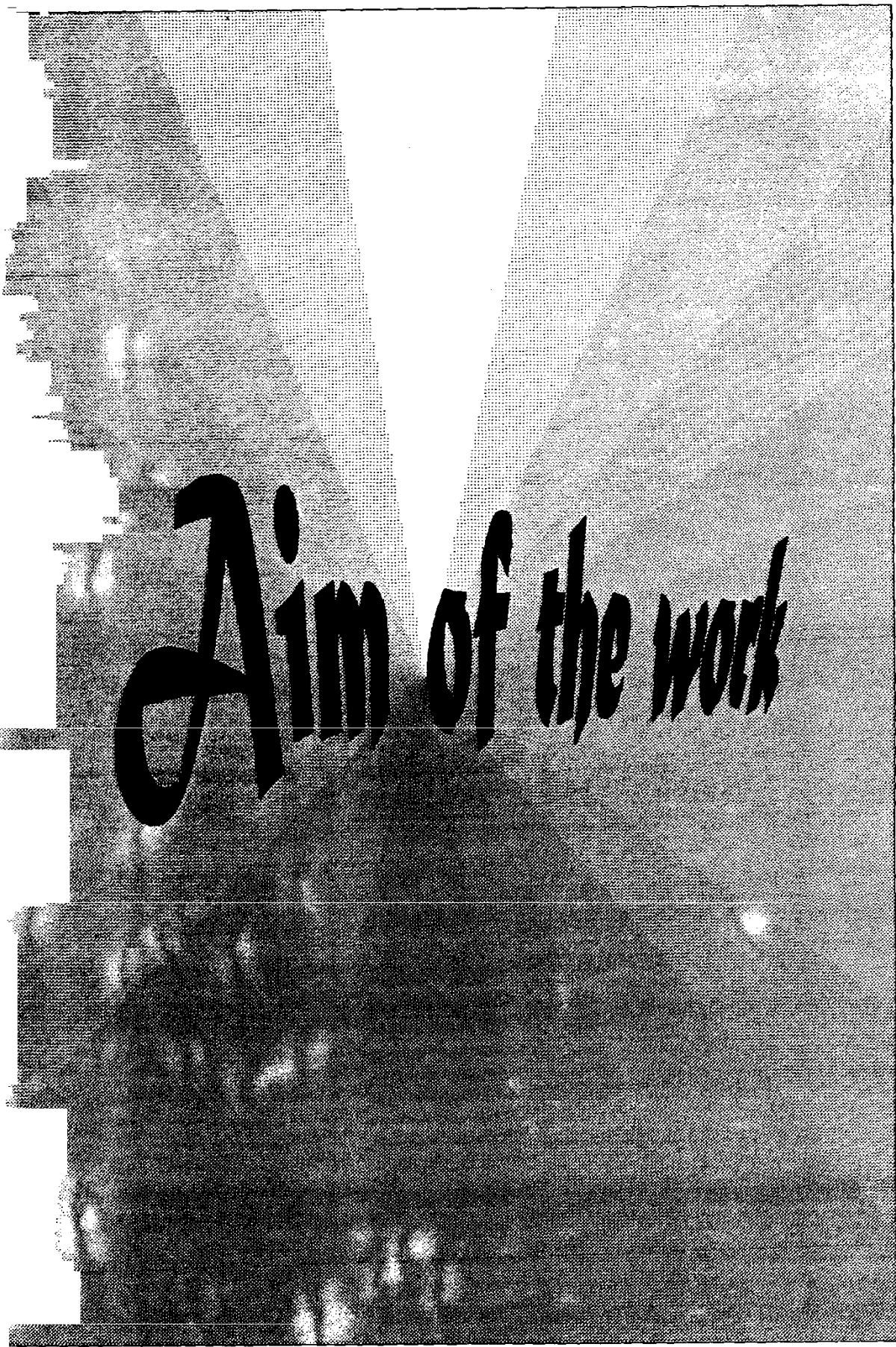
There have been criticisms of the application of the CTG in clinical management before it was fully assessed.

Lumly 1983, Kidd et al 1985 failed to demonstrate a beneficial effect on foetal outcome while others believe that intervention on the basis of specific CTG abnormalities prevents poor foetal outcome (Chew et al 1985).

Visual scoring systems have attempted to quantify CTG changes (Hammacher et al 1974, Verma 1984).

Five items which are assessed in CTG :

Basal foetal heart rate, amplitude, cycles per minute, acceleration, and decelerations (early decelerations, late, variable and prolonged decelerations). (Mayer-Menk 1981)



Aim of the work

Aim of the work

This study will try to detect the predictive value of cardiotocography versus biophysical profile in evaluation of feti in cases of pregnancy induced hypertension (PIH).

Also , trying to choose which one is better in the evaluation.