

***Nitric Oxide Donor, Prostaglandins
For Induction Of Labor.
A Randomized Prospective Study***

Thesis

Submitted for partial fulfillment of
M. SC. Degree in Obstetric & Gynecology

By

Dalia Mohamed Abd EL Rahman.

M. B., Bch.

Faculty of Medicine, Cairo University.

Under supervision of

Prof. Sherif Mohamed saleh El Ghetany

Professor of Obstetric & Gynecology
Faculty of Medicine, Ain Shams University.

Dr. Ashraf F. I. Nabhan

Lecturer of Obstetric & Gynecology
Faculty of Medicine, Ain Shams University.

Faculty of Medicine.
Ain Shams University
2000

*Nitric Oxide Donors, versus Prostaglandins
For Induction of labor.
A randomized prospective study.*

Thesis.

*Submitted for partial fulfillment of
M.Sc. Degree in Obstetric & Gynecology.*

By

Dalia Mohammed Abd El Bahman

M. B. Bch.

Faculty of Medicine, Cairo University.

Under supervision of

Prof. Sherif Mohamed Saleh El Ghetany

Professor of Obstetric & Gynecology.

Faculty of Medicine, Ain Shams University.

Dr. Ashraf F. I. Nabhan

Lecturer of Obstetric & Gynecology.

Faculty of Medicine, Ain Shams University.

Faculty of Medicine.

Ain Shams University.

2000



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

مَعَالِي دِينِكَ لَا عِلْمَ لَنَا

إِلَّا مَا عَلَّمَنَا إِنَّكَ أَنْتَ

الْعَلِيمُ الْحَكِيمُ

حَقُّ اللَّهِ الْعَلِيمِ

سورة البقرة "آية ٣٢"

Acknowledgment

I would like to express my gratitude and acknowledgment to Professor Sherif M.S. El Ghetany, for his knowledge and advice, which makes this work became possible. I would also like to thank him for his unlimited generosity and patience.

I would like to thank Dr. Ashraf E. I. Tabhan for his effort, and for being extra-ordinary in his kindness and influence.

I would like to thank Dr. Magdi Elawad A. Helary for being very kind and patient with me, and made a great effort to put this work together.

Finally, I would like to express my gratitude to every one who helped me to do this work.

Dedication

I would like to dedicate this work to a man & a woman who have always surrounded me with an unconditioned love, my Father & my Mother.

I also, want to express my gratitude to the brilliant, knowledgeable professors and tutors of Faculty of Medicine at Ain Shams University & Cairo University, because they have exerted all possible efforts to make me worthy of a title so honorable, for so little in return.

I am also very thankful to Professor Dr. Emad Abdel El Hamul, who has supported me very much, in a very pleasant and selfless way to put this work together.

I also, want to thank my dear friend Dr. Elaha Helmy, for being a wonderful and supportive friend.

And finally, I would like to thank every one & every heart that once loved me and cared about me.

Contents

*List of Tables.

*List of Figures.

*List of Abbreviations.

	Page
*Introduction -----	I
*Aim of the work -----	II
*Review Of Literature	

Chapter One Induction of labor:

• Indications -----	1
• Estimation of actual gestational age--	6
• Labor induction policy -----	8
• Methods of Induction of labor -----	11

Chapter Two Human Cervix:

- **Morphology of human cervix** ————— 18
- **Histology of human cervix** ————— 21
- **Metabolism of cervical connective tissue** — 27
- **Cervical changes during pregnancy and
labor**————— 29
- **Hormonal regulation of cervix**————— 43
- **Measurements of cervical ripening**——— 45

Chapter Three Nitric Oxide:

- **Synthesis and characteristics of Nitric
oxide** ————— 50
- **Biological character of Nitric oxide** 51
- **Regulation of Nitric oxide synthase
activity**————— 53
- **Metabolism of Nitric oxide** —— 55
- **Effects Of Nitric oxide**————— 56

• Role of Nitric Oxide in pregnancy-----	73
• Role of vascular endometrium in pregnancy-----	77
• Effect of Nitric Oxide on Cervical ripening-----	80

Chapter Four Prostaglandins:

• Biochemistry & Biology Of Prostaglandins -----	83
• Uses of Prostaglandins -----	86
*Patients and methods -----	98
*Results -----	103
*Discussion -----	127
* Summary & Conclusion-----	137
*References -----	145
*Arabic Summary	

List Of Tables

<i>NO</i>	<i>Table</i>	<i>Page</i>
1	Length of gestational age according to LMP.	7
2	Indication of induction of labor.	9
3	Proportions of CS in induced labor for various causes.	10
4	Bishop Scoring System.	45
5	Modification of Bishop Score, (Weingrup; 1969).	47
6	Modification of Bishop Score, (Calder et al; 1964)..	48
7	Lang's modification of Bishop score, (Linge's et al; 1982).	49
8	Comparison between group "A" and group "B" as regard demographic and clinical data.	103
9	Comparison between group "A" and group "B" as regard indication of induction of labor.	105

<i>No</i>	<i>Table</i>	<i>Page</i>
10	Comparison between pre-treatment & 4 hrs post-treatment cervical canal diameter in group "A" and group "B".	106
11	Comparison between group "A" and group "B" as regard consistency of the cervix	108
12	Comparison between pre-treatment & 4 hrs post-treatment in group "A" as regard station of the presenting part.	109
13	Comparison between pre-treatment & 4 hrs post-treatment in group "B" as regard station of the presenting part.	110
14	Comparison between pre-treatment & 4 hrs post-treatment in group "A" and group "B" as regard change in total Bishop score.	111
15	Comparison between group "A" and group "B" as regard need to oxytocin.	114

<i>NO</i>	<i>Table</i>	<i>Page</i>
16	Comparison between pre-treatment & 4 hrs post-treatment in group "A" as regard systolic, diastolic, and mean arterial blood pressure.	115
17	Comparison between pre-treatment & 4 hrs post-treatment in group "B" as regard systolic, diastolic, and mean arterial blood pressure.	117
18	Comparison between group "A" and group "B" as regard Induction delivery time.	119
19	Comparison between group "A" and group "B" as regard fetal complication.	120
20	Comparison between group "A" and group "B" as regard maternal side effects.	122
21	Comparison between group "A" and group "B" as regard route of delivery.	123
22	Comparison between group "A" and group "B" as regard neonatal outcome.	125

List Of Figures

NO	Figure	Page
1	Mean maternal age.	104
2	Mean maternal gestational age.	104
3	Mean maternal parity.	104
4	Indication of induction of labor in group "A".	105
5	Indication of induction of labor in group "B".	106
6	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "A"	107
7	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "B".	107
8	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "A" as regard station of the presenting part.	109

<i>NO</i>	<i>Figure</i>	<i>Pag</i>
9	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "B" as regard station of the presenting part.	11
10	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "A" as regard change in Bishop score.	11
11	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "B" as regard change in Bishop score..	11
12	Comparison between group "A" and group "B" as regard need to oxytocin.	11
13	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "A" as regard systolic blood pressure.	11
14	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "A" as regard diastolic blood pressure.	11

NO	Figure	Page
15	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "A" as regard mean arterial blood pressure.	117
16	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "B" as regard systolic blood pressure.	118
17	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "B" as regard diastolic blood pressure.	118
18	Comparison between pre-treatment & 4 hrs post-treatment cervical diameter in group "B" as regard mean arterial blood pressure.	119
19	Comparison between group "A" and group "B" as regard induction delivery time.	120
20	Comparison between group "A" and group "B" as regard fetal complications.	121
21	Maternal side effect in group "A".	122