

Effect of intraumbilical vein injection of oxytocin and/or prostaglandin F₂ alpha on puerperal blood loss and length of the third stage of labour

THESIS

*Submitted for partial fulfillment of Master Degree in
Obstetrics and Gynaecology*

BY

ABDEL MAJEED ISMAIL ABDEL MAJEED

M. B.; B. Ch. (1987).

Registrar of Obstetrics & Gynaecology, Ain Shams University

SUPERVISED BY

Prof. Dr. AHMED GALAL EL-LAITHY

Professor Of Gynaecology & obstetrics

Faculty Of Medicine - Ain Shams University

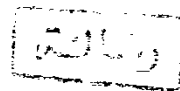
Dr. ESSAM-ELDIN MOHAMED AMMAR

Lecturer Of Gynaecology & Obstetrics

Faculty Of Medicine - Ain Shams University

FACULTY OF MEDICINE

Ain Shams University



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

مصدق الله العظيم

(سورة البقرة - آية ٣٣)



ACKNOWLEDGMENT

I would like to express my deepest appreciation and gratitude to Professor Doctor Ahmed Galal El-Laithy, Prof. of obstetrics and gynaecology, Ain Shams University for his sincere help and constant supervision all through the work.

I would like also to express my deep gratitude and thanks to Dr. Essam Ammar, lecturer of obstetrics and gynaecology, Ain Shams University for his sincere supervision and energetic help in the details of this work with constructive criticism to ensure that this work would reach an updated level.

I'm thankful as well to Dr. Magdi Mohamed Kamal, Lecturer of obstetrics and gynaecology, Ain Shams University for his kind instructions and sincere help and patience in the construction of the main skeleton of this work.

Acknowledgment

Finally, I would like to acknowledge my appreciation to my father, my mother, my wife who suffered a lot throughout the work, and to my daughter.

Abdel Majeed Ismail Abdel Majeed

1991

INDEX

Introduction	1
Aim of the work	3
Review of literature :	
The placenta	4
The umbilical cord	15
Feto-placental circulation	18
The third stage of labour	23
Extrinsic oxytocic drugs	31
Ergot alkaloids	32
Oxytocin	41
Prostaglandins	53
Complications of third stage of labour	67
Subjects and methods	87
Results	92
Discussion	102
Conclusion	108
Summary	109
References	111
Arabic Summary:	

Introduction

INTRODUCTION

The third stage of labour in which separation and expulsion of the placenta occurs, is still a matter of researches describing new advances and techniques in its management. This is attributed to the following factors :

Firstly, third stage hemorrhage is a significant cause of obstetric shock and later puerperal anemia with increased risk of blood transfusion-borne infections.

Secondly mismanagement of the the third stage of labour, which involves attempts to hasten placental delivery before its separation, is a common cause of occurrence of retained placenta & membranes, avulsion of the cord and postpartum haemorrhage.

Thirdly, some groups of patients must have restricted amount of intravenous fluids containing ecbolics which are given routinely after delivery of the placenta as cases of rheumatic heart disease with pregnancy and in other groups it is important to hold the blood loss to a minimum as in case of anemia with pregnancy.

For all the above reasons, any mechanism that reduce postpartum blood loss and risk of blood transfusion is of great value.

New researches have been lately done for active management of third stage of labour by injection of echolic drugs in the umbilical vein like oxytocin.

The effect of intraumbilical vein oxytocin is controversial. Some authors like Golan et al., (1989) reported using the method on 22 women with excellent results and no maternal ill effects whatsoever occurred". On the other hand Kristiansen et al., 1987 found no significant advantage in using the method. It may be due to the small dose used.

A new drug will be used for the first time in the management of the third stage of labour in this study, which entails the administration of diluted prostaglandin F2 α (PGF $_2\alpha$) in the umbilical vein after the cord is clamped and cut. Then, we observe its effect on the amount of blood loss and length of the third stage. Prostaglandins are echolic drugs used recently in a wide variety of obstetric indications.

Aim of the work

AIM OF THE WORK

The aim of this work is to study the use of intraumbilical vein injection of oxytocin and/or prostaglandin F2 α as a routine alternative to the traditional management of *third* stage of labour.

Review of literature

THE PLACENTA

The term Placenta was first introduced by Realdus Colombus in 1559. This is a Latin word meaning 'circular Cake' (Pritchard, 1985).

Anatomical considerations:

The Placenta is a circular organ measuring about 8 inches (20 cm) in diameter, one inch (2 cm) in thickness at the center. The margins are thinner and firmer than the center. The placental weight varies according to the gestational age. It is estimated roughly to be about 1/5th of fetal weight (Percival 1988).

The placenta has 2 surfaces :

(1) **Fetal surface** : which is covered by the amniotic membrane which can be stripped up easily exposing the chorion. The chorion is smooth in appearance, running in it the large superficial branches

of the umbilical vessels. The arteries run irregularly outwards towards the edges of the placenta and are accompanied or crossed by the veins. They never reach the edge in a normal placenta. The cut section of the placenta shows a chorionic plate towards the fetal surface which is about 1/12 inch in thickness, and from its deep surface springs the mass of spongy tissue formed chiefly of villi (Percival, 1980).

(2) **The maternal surface :** is covered with greyish remnants of decidua. It is divided into maternal cotyledons by placental septae. (Llewellyn - Jones, 1982).

If the placenta is incised, a big deal of dark blood slowly runs away from it. The intervillous space can be washed out by tap water and the arborescent villi will appear as a dense reticulum of grayish threads.

The placenta is usually implanted or attached to the upper part of the body of the uterus including the fundus with equal frequency to the adjacent anterior or posterior wall (Percival, 1980).

* Embryological considerations :

Just before the trophoblast differentiates into two layers, an inner cellular one, the cytotrophoblast and an outer layer which lacks cell membranes, the syncytiotrophoblast. Proliferation of the inner layer pushes the knobs of trophoblast deeply into the decidua and by the 10th day after fertilization there is much intermingling of trophoblast and maternal tissues. Within the projecting knobs of trophoblasts, a third layer of primitive connective tissue, the mesoblast, is differentiated from the inner surface of the cytotrophoblast. The mesoblast proliferates rapidly and not only forms the core of the projecting knobs of trophoblast but also lines the cavity of the blastocyst which is now termed a chorionic sac. With further proliferation the trophoblastic knobs assume a finger-like shape and are termed chorionic villi. Spaces appear between the closely packed trophoblastic projections, so that they are split into separate villi, and by coalescence the spaces (lacunae) increase in size. By this time the tips of the villi have reached the endometrial capillaries and have surrounded and eroded their walls so that maternal blood provides nutriment for the trophoblastic cells and seeps into the lacunae. However, the trophoblastic invasion is uniform and ridges