Effect of Intramuscular Administration of Dexamethasone on Shortening of the Duration of Induction of Labor by oxytocin

Thesis

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✍ *Medhat Ramadan*

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List of Abbreviations

11B-HSD1	:	11B-Hydroxy steroid dehydrogenase type1
ACOG	:	American College of Obstetricians and Gynecologists
ACTH	:	Adrenocorticotrophic hormone
AFI	:	Amniotic fluid index
ATP	:	Adenosine triphosphate
BMI	:	Body mass index
BP	:	Blood pressure
BPM	:	Beats per minute
BPP	:	Biophysical profile
C/S	:	Cesarean Section
C-AMP	:	Cyclic adenosine monophosphate
CC	:	Cubic centimeters
COX-2	:	Cyclooxygenase 2
CPLA2	:	Cytosolic phospholipase A2
CRH	:	Corticotrophin Releasing Hormone
CRH-BP	:	CRH-binding protein
CSF	:	Colony-stimulating factor
CST	:	Contraction stress test

Cyclic AMP	**:**	Cyclic adenosine monophosphate
CYP17-CYP11A	**:**	Cytochrome enzyme (p17-p11A)
DHEAS	**:**	Dehydro epiandrosterone sulfate
DZ	**:**	Definitive zone
EASI	**:**	Extra-Amniotic Saline Infusion
EDD	**:**	Expected delivery date
EFM	**:**	Electronic fetal heart rate monitoring
Eg	**:**	Example
fFN	**:**	Fetal Fibronectin
FHR	**:**	Fetal heart rate
HFA	**:**	Human fetal adrenal
HSD3B2	**:**	3-hydroxysteroid dehydrogenase type ll
IGFBP-1	**:**	Insulin-Like Growth Factor Binding Protein-1
IL-8	**:**	Interleukin-8
LMP	**:**	Last menstrual period
M2	**:**	Meters square
M-CSF	**:**	Macrophage stimulating factor
MMps	**:**	Metallo proteinases
mRNA	**:**	Messenger Ribonucleic Acid

NA	**:**	Not applicable
NO	**:**	Nitric oxide
NST	**:**	Non stress test
PGDH	**:**	15-hydroxy prostaglandin dehydrogenase
PGE2-PGF2	**:**	Prostaglandin
PGHS	**:**	Prostaglandin endoperoxide H synthase enzyme
PGHS-2	**:**	Prostaglandin synthesis
PGs	**:**	Prostaglandins
RCOG	**:**	Royal Colleague of Obstetrics and Gynecology
SVD	**:**	Spontaneous vaginal delivery
TNF	**:**	Tumor necrosis factor
TZ	**:**	Transitional zone
WHO	**:**	World Health Organization

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Abstract

Aim of work: To determine the effect of intramuscular administration of dexamethasone on the duration of labor Induction.

Methods: seventy two pregnant women were included in this study. (Study group and control group); each contain thirtee six pregnant women. Study group was injected with two ml dexamethasone and the control group was injected with two ml distilled water six hours before labor induction .Both groups were induced by same protocol till optimal contractions are reached.

Conclusion: An intramuscular injection of dexamethasone was found to shorten the duration of labor induction. Also it is found to shorten the duration of active phase and second stage of labor.

Key words: induction, labor, dexamethasone

Introduction

Induction of labour is a common obstetric procedure which is performed for a variety of medical and non medical indications ***(Schwarz et al., 2016)***.

If the cervix is unfavourable , prior ripening of the cervix makes induction of labour easier and more succeful. There are different methods for ripening of the cervix and making it ready for induction. These methods include medical methods such as the administration of prostaglandins ***(Van Gemund et al., 2004),***and mechanical methods such as extra amniotic saline infusion (EASI),traction on the cervix with Foley catheter and laminaria***(Karjane et al., 2006)***. One of the methods proposed for the speeding up of the labor process (labor induction) is use of corticosteroids ***(Karjane et al., 2006)***.

Although the effects of using these substances in the labor process is not well – understood, studies conducted on animals indicate the importance of the secretion of cortisol by adrenal glands in sheep fetuses and in fetuses of other animals on starting labor ***(Sharami et al., 2005)***. It has been observed that infusion of glucocorticoids into sheep fetuses causes premature birth induction ***(Batista et***

al., 2011). These studies have prepared the way for bringing up the role of corticosteroids in the speeding up of labor induction in women. In studies carried out, corticosteroids have been employed using extra-amniotic and intravenous methods and in some of these studies, both methods have proved successful ***(Levy et al. ,2002)***. Corticosteroids have been suggested for assisting in the ripening of the cervix ***(Ziaei et al., 2003).*** As the presence of the receptors for glucocorticoids on the amniotic membrane at the begining of labor enhances the hypothesis that they probably have a role in the initiation of labor ***(Kavanagh et al., 2006).*** The process of childbirth starts from the axis of the hypothalamus, the pituitary gland, and the adrenal glands.Steroid substances produced in the adrenal glands of the human fetus affect the placenta and the membranes and transform the myometrium from the static to the contractile state ***(Hoffman et al., 2012).*** In various studies, researchers have shown that as in sheep, the production of cortisol in the adrenal glands of human fetus affects the fetus and the membranes through increasing placental CRH production (through a feed – forward cascade) which causes the myometrium to transform from the static to the contractile state. In addition

, cortisol has been proposed to affect the myometrium indirectly by stimulating the membranes to increase prostaglandin synthesis. furthermore, It has been revealed that the CRH derived from the placenta is an important factor in increasing maternal estrogens (especially esteriol) in the final stages of pregnancy. The resulting increase in estrogen brings about a change in the ratio of estrogen to progesterone, which promote the expression of a series of contractile proteins in the myometrium, leading to a loss of myometrial quiescence ***(Hoffman et al., 2012).***

Aim of the Work

The aim of this work is to evaluate the effect of intramuscular administration of dexamethasone on the duration of vaginal delivery in women undergoing induction of labor.

Research hypothesis

In women undergoing induction of labour,IM dexamethasone may decrease the duration of labour

Research question

In women undergoing induction of labour,Does IM dexamethasone decrease the duration of labour ?