

**PREDICTION SUCCESSFUL PROSTAGLANDIN ( PGE<sub>2</sub> ) INDUCTION  
OF LABOUR IN PRIMIPAROUS TERM PREGNANCY BY  
MEASURING CERVICAL LENGTH USING TRANSVAGINAL  
ULTRASOUND**

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**STATE OF JOHOR**

**AND**

**DEPARTMENT OF OBSTETRICS &  
GYNAECOLOGY, HOSPITAL SULTAN  
ISMAIL, JOHOR**

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## **ABBREVIATIONS**

AOR	:	Adjusted odds ratio
AS	:	Apgar score
CI	:	Confidence interval
CL	:	Cervical length
FAD	:	Forceps assisted delivery
HSI	:	Hospital Sultan Ismail
LSCS	:	Lower segment caesarean section
MAS	:	Meconium aspiration syndrome
NICU	:	Neonatal intensive care unit
PAC	:	Patient admission centre
PGE2	:	Prostaglandin E2
SVD	:	Spontaneous vertex delivery
TTN	:	Transient tachypnoeic of newborn
TVS	:	Transvaginal sonography
VAD	:	Vaccum assisted delivery
VE	:	Vaginal examination

# ABSTRAK

## PENGENALAN

Induksi kelahiran adalah proses stimulasi untuk merangsang kontraksi rahim sebelum kontraksi semulajadi berlaku. Induksi kelahiran dilakukan sekiranya keadaan ibu dan bayi di dalam rahim lebih berisiko sekiranya kandungan itu di panjangkan. Dalam dunia perubatan moden, beberapa kajian telah dilakukan untuk menentukan penggunaan pengukuran serviks atau pintu rahim untuk meramalkan keberkesanan proses induksi kelahiran. Kami menjangka bahawa ukuran kepanjangan serviks sebelum proses induksi kelahiran mampu meramalkan kejayaan proses induksi kelahiran pada yang kandungan kali pertama dengan usia kandungan matang.

## OBJEKTIF

Kajian ini bertujuan untuk mengenal pasti hubungkait antara kepanjangan serviks dan kejayaan proses rangsangan kelahiran menggunakan ubat prostaglandin ( PGE 2 ) di kalangan kehamilan pertama dengan usia kandungan matang.

## METODOLOGI

Ini adalah satu kajian pemerhatian prospektif yang mengenal pasti hubungkait antara kepanjangan serviks dan kejayaan proses induksi kelahiran menggunakan ubat prostaglandin ( PGE2 ) di kalangan kehamilan pertama dengan usia kandungan matang. Ultrasound melalui faraj akan digunakan untuk mengukur panjang serviks dan pemeriksaan menggunakan jari akan dilakukan untuk menentukan skor Bishop. Sekiranya skor hasil dari pemeriksaan itu kurang dari 5, ubat prostaglandin ( PGE2 ) 3mg akan dimasukkan ke bahagian bawah serviks dengan menggunakan jari. Sekiranya hasil pemeriksaan seterusnya menunjukkan skor kurang dari 5, maka prostaglandin ( PGE2 ) akan di masukkan lagi dan maksimum sebanyak 3 kali. Kemasukan data dan analisis data akan dilakukan dengan menggunakan SPSS versi 12. Nilai p yang kurang daripada 0.05 dianggap signifikan.

## KEPUTUSAN

Seramai 90 orang ibu mengandung kehamilan pertama dengan usia kandungan matang telah berjaya direkrut untuk kajian ini. Antara pesakit tersebut, seramai 66 ( 77.3% ) orang pesakit telah berjaya melahirkan bayi secara kelahiran melalui faraj. Manakala 24 ( 26.7% ) orang pesakit melahirkan bayi secara pembedahan caesarean kecemasan. Antara 24 orang pesakit, 5 ( 5.6% ) orang pesakit melahirkan bayi secara pembedahan kecemasan disebabkan bayi lemas. Dengan menggunakan analisa multivariate, factor yang signifikan dengan kejayaan proses induksi kelahiran menggunakan prostaglandin ialah kepanjangan pintu rahim/ serviks ( AOR:34.4; 95% CI = 5.6 – 211.9 ). Dengan lakaran ‘ ROC Curve’, nilai ukuran kepanjangan pintu rahim/ serviks untuk meramalkan kejayaan proses induksi kelahiran menggunakan prostaglandin ialah 3.1cm dengan ‘ sensitivity’ 83.6% dan ‘ specificity’ 70.6%. Selain itu juga, proses induksi kelahiran menggunakan prostaglandin di kalangan ibu mengandung kehamilan pertama dengan usia kandungan matang tidak menunjukkan sebarang kesan negatif terhadap bayi yang dilahirkan

## KESIMPULAN:

Kepanjangan serviks yang diukur dengan menggunakan ultrasound transvaginal sebelum proses induksi kelahiran menggunakan prostaglandin E2 dikalangan ibu mengandung kehamilan pertama dengan usia kandungan matang mempunyai nilai ramalan yang baik dalam menentukan kejayaan proses induksi. Proses induksi kelahiran menggunakan prostaglandin E2 juga tidak memudaratkan bayi yang dilahirkan.

# **Abstract**

## INTRODUCTION

Induction of labour is a process stimulating uterine contraction prior its spontaneous onset. Induction of labour should be considered when prolonging the pregnancy may increase risk of adverse effects to the mother and fetus. In modern medical practice, several studies done to determine role of measuring cervical length to predict successful labour induction. We believed that measuring cervical length prior induction of labour in primiparous term pregnancy able to predict successful induction of labour.

## OBJECTIVE

Purpose of this study is to determine the correlation between the cervical length measured by transvaginal ultrasound with successful vaginal delivery following prostaglandin E2 induction in primiparous term pregnancy

## METHODOLOGY

This is prospective observational study to determine the correlation between the cervical length measured by transvaginal ultrasound and successful prostaglandin induction of labour in primiparous term pregnancy. Transvaginal ultrasound used to determine cervical length and digital examination of the cervix is performed to determine the bishop score. If bishop score  $< 5$ , prostaglandin ( PGE2 ) will be inserted, and will reassessed after 6 hours. If bishop score remain unfavourable, then prostaglandin will be inserted ( maximum 3 times ). Data entry and analysis performed using SPSS version 12. The p value  $< 0.05$  is consider significant

## RESULT

Total 90 primiparous term pregnancy women were successfully recruited. 66 ( 77.3% ) of them successfully delivered vaginally, whereas 24 ( 26.7% ) of them were delivered via emergency caesarean section. Out of 24 women delivered via emergency caesarean section, 5 ( 5.6% ) of them were due to acute fetal distress. By using multivariate analysis, only cervical length was statistically significant ( AOR: 34.4, 95% CI = 5.6 – 211.9 ) in predicting successful prostaglandin E2 induction. Using receiver operating characteristic ( ROC ) curve, the cut off value of the cervical length that associated with successful prostaglandin E2 induction in primiparous term pregnancy was 3.1 cm with sensitivity 83.6% and specificity 70.6%. Beside that, induction of labor using prostaglandin in primiparous term pregnancy did not cause negative impact to the newborn.

### Conclusion:

Cervical length measured by transvaginal ultrasound prior induction of labour using prostaglandin E2 among primiparous term pregnancy able to predict successful induction process. Induction of labour using prostaglandin E2 did not cause harm to the newborn.