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Brief Communication

Length of pregnancy of Sri Lankan women attending a tertiary care center in Colombo

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Key words: **Length of pregnancy, Spontaneous onset of labour, Induction of labour, cost analysis**

Abstract

Background & Objectives: The median time from ovulation to birth is estimated to be 268 days (38+2 weeks). However, there is a gestational length variation in the range of 37 days. Previous studies have shown that perinatal mortality and morbidity of the foetus increase after a period of gestation (POG) of 41 weeks due to increase in foetal size. It is also believed that South Asian foetuses have a shorter length of pregnancy and a higher risk of mortality when compared with Europeans. Induction of labour may be associated with increased risks of complications and higher expenses.

This study was designed to ascertain the length of uncomplicated pregnancy in Sri Lankan women and pregnancy outcomes of those managed expectantly till 41 weeks, as well as identify the cost associated with induction of labour and the safest and most cost-effective time period for induction of labour in Sri Lankan foetuses.

Methods: A descriptive cross-sectional study was conducted among 922 women who had uncomplicated singleton pregnancies with dates confirmed by ultrasound at 12-13 weeks at Colombo South Teaching Hospital. Routine antenatal care was offered.

Results: Out of the 922 pregnant women 93.16% (n=859) underwent spontaneous onset of labour by POG 41 weeks and 3 days. Only 6.83% (n=63) required induction with the expectant management policy. There were 29 (3.14%) Special Care Baby Unit (SCBU) admissions of which only 9 were after POG 40 weeks

Conclusion: A significant proportion of women with uncomplicated pregnancies underwent spontaneous onset of labour with minimum complications by POG 41+3 weeks. Both maternal and neonatal health were optimal. Induction of labour poses a risk to both the mother and the foetus and is an economic burden to under-resourced settings. Hence it is prudent that we fully understand that the true length of pregnancy may be longer than expected and allow spontaneous onset of labour to occur. Further studies need to be conducted to ascertain the true length of pregnancy beyond POG 41 weeks. A uniform policy for timing of induction of labour for Sri Lanka should be formulated by considering region specific data.

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Introduction

Pregnancy is a physiological process which is experienced by women. The median time from ovulation to birth is estimated to be 268 days (38+2 weeks). However, there is a gestational length variation in the range of 37 days [1]. Previous studies have shown that perinatal mortality and morbidity of the foetus increase after a period of gestation (POG) of 41 weeks due to increase in foetal size [2]. It is also believed that South Asian foetuses have a shorter length of pregnancy and a higher risk of mortality when compared with Europeans and that foetal maturation may occur earlier with early loss of foeto-placental function [3].

Spontaneous onset of labour (SOL) is defined as onset of regular contractions and cervical change with no external intervention and is considered the safest for both women and neonates.

Induction of labour (IOL) is defined as the process of artificially stimulating the uterus to initiate labour. It is usually performed by administering oxytocin or prostaglandins to the pregnant woman or by manually rupturing the amniotic membranes. It is accepted by wide consensus that IOL should be performed only when there is a clear medical indication for it.

Over the years, various professionals and research data have recommended the use of IOL as a safe alternative in situations where the risks of awaiting SOL are clinically judged to be higher than the risks associated with shortening the duration of pregnancy by induction.

Therefore, an approach of IOL is recommended by WHO when SOL does not occur by 40+7 weeks [4]. However, in Sri Lanka, as there is no proper induction policy, the decision to induce is decided individually at a unit basis. According to existing estimates, Sri Lanka has the highest IOL rate in Asia (about 35.5% of total deliveries) [4].

Despite its advantages in certain situations, IOL should be performed with caution as the intervention affects the natural process of pregnancy and labour and may be associated with increased risks of complications, such as bleeding, higher risk of needing caesarean section, uterine hyperstimulation and rupture and other adverse outcomes. Furthermore, during IOL, the woman has restricted mobility and the procedure itself can cause discomfort.

Wherever IOL is carried out, facilities should be available for assessing maternal and foetal well-being by close monitoring. And wherever possible, IOL should be carried out in health care facilities where caesarean section can be readily performed if and when needed [3].

Another aspect of consideration is the expenses associated with the procedure, and subsequent monitoring required for the high-risk pregnancy with IOL as opposed to the low-risk pregnancy of SOL [6]. Therefore, this study was designed to ascertain the length of uncomplicated pregnancy in Sri Lankan women and pregnancy outcomes of those

managed expectantly till 41 weeks, as well as identify the cost associated with IOL and the safest and most cost-effective time period for IOL in Sri Lankan foetuses.

Methodology

A descriptive cross-sectional study was conducted among 922 women who had uncomplicated singleton pregnancies with dates confirmed by ultrasound at 12-13 weeks at Colombo South Teaching Hospital. Routine antenatal care was offered.

Ultrasound scan was done at period of gestation (POG) 40 weeks to assess foetal well-being and if the parameters were found reassuring the patient was discharged and managed expectantly until 41 weeks. Parameters of estimated foetal weight >2.5 kg, amniotic fluid index (AFI) normal and symmetrical growth were considered as reassuring.

All data was analyzed by SPSS version 24.0.

Results

Out of the 922 pregnant women, 4.33% (n=22) underwent SOL before completion of POG 37 weeks. 62.47% (n=576) underwent SOL between POG 37-40 weeks while 23.64% (n=218) underwent SOL between POG 40+1 to 41 weeks. Altogether 93.16% (n=859) underwent SOL by POG 41 weeks and 3 days. Only 6.83% (n=63) required induction with the expectant management policy.

There were 29 (3.14%) SCBU admissions of which only 9 were after POG 40 weeks. Number of lower segment Caesarean sections during labor was 41 (4.4%) of which 7 were from the induction group due to past dates (>41 weeks). Average APGAR score was 9.8. The mean POG at delivery was 39 weeks.

Table I: Rates of spontaneous onset of labour at different periods of gestation

POG (weeks)	Number	Cumulative number	%	% needed induction
<37	40	40	4.34%	95.66%
37-37+6	80	120	13.02%	86.98%
38-38+6	181	301	32.65%	67.35%
39-39+6	261	562	60.95%	39.05%
40	54	616	66.81%	33.19%
40+1	34	650	70.50%	29.50%
40+2	45	695	75.38%	24.62%
40+3	47	742	80.48%	19.52%
40+4	27	769	83.41%	16.59%
40+5	28	797	86.44%	13.56%
40+6	25	822	89.15%	10.85%
41	12	834	90.46%	9.54%
41+1	12	846	91.76%	8.24%
41+2	11	857	92.95%	7.05%
41+3	2	859	93.17%	6.83%

Discussion

A significant proportion of women with uncomplicated pregnancies underwent SOL with minimum complications by POG 41+3 weeks. Both maternal and neonatal health was

optimal. However, due to the currently available national guidelines true length of pregnancy beyond POG 41+3 weeks could not be determined.

According to existing estimates, Sri Lanka has the highest IOL rate in Asia (about 35.5% of total deliveries) [5]. This can be reduced to 9.54% if IOL is withheld and SOL is awaited until 41 weeks and the rates will further decrease with increasing gestation upto 41+3 weeks with no significant increase in perinatal morbidity or mortality.

The increased tendency towards early induction could be due to concerns regarding earlier loss of foeto-placental function in South Asian foetuses. The validity of this claim should be further explored as well.

IOL converts uncomplicated pregnancy from low risk to high risk. The risks to both the mother and the foetus such as bleeding, higher risk of needing caesarean section, uterine hyperstimulation and rupture has been observed.

Another aspect of consideration is the expenses associated with the medication used for the procedure, and the subsequent monitoring required for the high-risk pregnancy with IOL as opposed to the low-risk pregnancy of SOL [6]. In one study, the cost of delivery after IOL was found to be about $1715 as compared with SOL $1474, which showed a net difference of approximately 88 500 LKR [7].

The cost analysis includes cost of 1 or 2 doses of prostaglandin, cost of at least 2 CTGs as well as the indirect cost of personnel needed for continuous monitoring of high-risk labour. This can strain the limited health-care resources in under-resourced settings.

With the current economic crisis the country is facing, the cost effectiveness of medical treatment in a “free healthcare system” has come into question. Therefore, it is prudent that we as clinicians employ low-cost solutions while not compromising on maternal or neonatal safety so as to maintain the high standards of maternal care which exist within the country.

Hence it is essential that we understand the true length of low-risk pregnancy which maybe longer than expected and await SOL for a longer period. A uniform policy for timing of IOL for Sri Lanka should be formulated by considering region specific data.

Limitations

Unit policy at present is to induce by 40+3 days. Therefore, we could not continue the pregnancy to observe the length of pregnancy.

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