

Induction of labour survey: A need for standardisation and/or change in practice

Zahar Azuar Zakaria, MMed

Obstetrics & Gynaecology Department, Hospital Kemaman, Chukai, Terengganu, Malaysia

SUMMARY

Induction of labour is one of the most common antepartum intervention. There are numerous methods available but the most commonly used in Malaysian public hospital is the intravaginal dinoprostone. This survey highlighted the various practices of using dinoprostone for different group of pregnant women which are unfortunately, not supported by robust clinical evidence. As such, it calls for further studies to allow future practice standardization. Alternatively, the use of misoprostol for induction of labour, which has better data profile, should also be considered.

INTRODUCTION

Induction of labour is one of the most common interventions in obstetric practice. The pharmacological agents approved for cervical ripening in the Ministry of Health Malaysia (MOH) hospitals are, the vaginal the prostaglandin E2 (dinoprostone 3mg tablet) and prostaglandin E1 analogue (gemeprost 1mg pessary), where the former is used for term or near-term pregnancy.

The Royal College of Obstetricians and Gynaecologists in 2001 and the National Institute for Health & Care Excellence (NICE) in 2008 recommended a maximum total dose of 6mg of prostaglandin E2 to be used for all women.^{1,2} This was; however, a grade C recommendation and it was largely based on the recommendation by the drug manufacturer. However, various protocols are currently being used by different centres including dosing beyond the recommendation. This study was initiated to determine the labour induction methods and protocols use by the obstetric services in public hospitals across the country.

MATERIALS AND METHODS

The hospitals under the MOH Malaysia with specialist obstetric services were identified in June 2019. A questionnaire, accompanied by a cover letter stating the intention of the survey were posted to the Heads of Obstetrics and Gynaecology Department of those hospitals. An empty envelope with a stamp, addressed to the author was also supplied for the respondents to return the completed survey questionnaire. The information sought in this survey were the methods of induction, the starting and maximum dose of dinoprostone tablet for different groups of women; the primiparas, multiparas (2nd till 5th pregnancy), grand multiparas (>5 previous pregnancies) and those with a

history of caesarean section (CS). The respondents were also asked about the preferred induction method for women with previous CS.

RESULTS

The questionnaire was posted to 48 hospitals, out of which 36 completed survey forms were returned. These involved nine state hospitals, 22 major and 5 minor specialist hospitals including those from Sabah and Sarawak.

All centres used Prostin® (Pfizer, NY, USA), a form of prostaglandin E2 or dinoprostone tablet 3mg and one also add dinoprostone gel in its induction of labour protocol. Twenty-six centres also used non-pharmacological methods such as laminaria tent osmotic dilator, Dilapan® (Gel-Med International, Prague, Czech Republic), and membrane sweeping.

All hospitals, except one, used 3mg tablet for cervical ripening in primiparous women, but the dosage for multiparas, grand multiparas and women with previous history of CS varied. Some did not use PGE2 in grand multiparas and women previous CS but opted for non-pharmacological method only (Table I).

In primiparas, the most common maximum dose use was 9 and 12mg. One centre used only a single dose of 3mg while another was in the opposite end of the spectrum, applying up to 15mg (5 tablets). In multiparous women the maximum PGE2 dose was more varied with 9mg being the most commonly used (27.7%). More than two-third of the surveyed hospitals used no more than 6mg of PGE2 for grandmultiparous women with only two went beyond this (Table II). Due to the risk of uterine scar dehiscence occurring, two-third of the hospitals used half-tablet for women with previous CS, and 30% used non-pharmacological methods only (mechanical or membrane sweeping) (Table II).

In total, about 80% of the surveyed hospitals used >6mg of prostaglandin in primiparous women. Among those that used the 3mg tablet for multiparas and grand multiparas, 70.8% and 50.0% respectively, exceeded the total of 6mg. While majority of the hospitals preferred either the mechanical methods or half tablet of dinoprostone for women with previous CS, seven used the 3mg tablet including one centre using up to a total of 9mg (Table II).

This article was accepted: 29 August 2021
Corresponding Author: Zahar Azuar Zakaria
Email: zazuarz@yahoo.co.uk

Table I: Number of hospitals (n) and labour induction method used according to the parity and past history of caesarean delivery

| Method | Primipara (n) | Multipara (n) | Grand multipara (n) | Previous CS (n) |
|---------------------|---------------|---------------|---------------------|-----------------|
| Dinoprostone 1.5 mg | 1 | 12 | 26 | 22 |
| Dinoprostone 3.0 mg | 35 | 24 | 4 | 3 |
| Other methods only | 0 | 0 | 6 | 11 |

Table II: Number of hospital (n) and maximum dinoprostone dose used according to the parity and past history of caesarean delivery

| Dose | Primiparous (n) | Multipara (n) | Grand multipara (n) | Previous CS (n) |
|-------------------|-----------------|---------------|---------------------|-----------------|
| 1.5 | - | - | 1 | 6 |
| 3.0 | 1 | 1 | - | - |
| 3.0 (2 X 1.5 mg) | - | 2 | 5 | - |
| 4.5 (3 X 1.5 mg) | - | 7 | 14 | 12 |
| 6.0 (2 X 3.0 mg) | 6 | 6 | 8 | 6 |
| 6.0 (4 X 1.5 mg) | - | 3 | - | - |
| 9.0 (3 X 3.0 mg) | 17 | 10 | 1 | 1 |
| 12.0 (4 X 3.0 mg) | 11 | 6 | 1 | - |
| 15.0 (5 X 3.0 mg) | 1 | 1 | - | - |
| Total | 36 | 36 | 30 | 25 |

DISCUSSION

A survey conducted in the United Kingdom had shown that 84.6% of the obstetrics units exceeded the recommended maximum dose.³ This survey found a similar figure, where 83.3% of the local public hospitals used more than 6 mg dinoprostone, or 77%, 70% and 50% for primiparas, multiparas and grand multiparas respectively, for labour induction.

The use of half tablet in women of high parity or with uterine scar derived from the presumed increased the risk of uterine rupture. Studies showed that dinoprostone at 1.5mg even for grand multiparas is safe, but the efficacy and safety of 3mg dosing are not clear.⁴ In women with uterine scar from previous CS, the recommendations on labour induction with vaginal prostaglandin are conflicting. A French and NICE guideline add a caution for such practice while a Canadian document advised against it.^{2,5,6} Yet the above data showed that 70% of the hospitals were using dinoprostone, singly or in combination with non-pharmacological methods, at full or half dose for this group of women.

In general, this survey highlights the diversity in the protocols of induction of labour among public hospitals in Malaysia especially the dinoprostone dosage, reflecting the inadequacy of data. Thus, this calls for further studies especially of Malaysian population to enable a standard to be drawn.

On another aspect, the dinoprostone is now largely being superseded by another prostaglandin preparation, misoprostol, which has the advantage of being cheaper, easier to store, having various routes of administrations and multiple peripartum indications. Meta analysis had shown that misoprostol is indeed superior to dinoprostone for labour induction.^{7,8} Unfortunately, in Malaysia, it is not approved to be used in pregnancy. But with the latest evidence, including a recommendation by an international body, considerations should be given to review the obstetrics use of misoprostol in the country.⁹

CONCLUSIONS

The marked difference in the practices of labour induction among the public hospitals in Malaysia exposes the lack of data especially the efficacy and safety of using different dosage of vaginal dinoprostone. More evidence on dinoprostone dosing should be sought, or the use of misoprostol, which has more robust data profile, should be considered.

CONFLICT OF INTEREST

The author reports no conflict of interest.

FUNDING

No special funding.

ACKNOWLEDGEMENTS

The author thanks the Director General of Health Malaysia for the permission to publish this paper.

REFERENCES

1. Royal College of Obstetricians and Gynaecologists. Evidence-based Clinical Guideline No. 9. Induction of labour. June 2001.
2. NICE. Clinical guideline: Induction of labour. London: National Institute for Clinical Excellence. July 2008.
3. Selo-Ojeme D, Pisal P, Barigye O, Yasmin R, Jackson A. Are we complying with NICE guidelines on the use of prostaglandin E2 for induction of labour? A survey of obstetric units in the UK. *J Obstet Gynaecol* 2007; 27: 144-7.
4. Haas J, Barzilay E, Chayen B, Lebovitz O, Yinon Y, Hendler I, Harel L. Safety of labor induction with prostaglandin E2 in grandmultiparous women. *J Matern Fetal Neonatal Med* 2013; 26(1): 49-51.
5. Sentilhes L, Vayssière C, Beucher G, Deneux-Tharaux C, Deruelle P, Diemunsch P, et al. Delivery for women with a previous cesarean: guidelines for clinical practice from the French College of Gynecologists and Obstetricians (CNGOF). *Eur J Obstet Gynecol Reprod Biol* 2013; 170(1): 25-32.

Short Communication

6. Leduc D, Biringer A, Lee L, Dy J. SOGC Clinical Practice Obstetrics: induction of labour. No. 296, September 2013. *J Obstet Gynaecol Can* 2013; 35(9): 840-57.
7. Alfirevic Z, Keeney E, Dowswell T, Welton NJ, Dias S, Jones LV, Navaratnam K, Caldwell DM. Labour induction with prostaglandins: a systematic review and network meta-analysis. *BMJ* 2015; 350: h217.
8. Chen W, Xue J, Peprah MK, Wen SW, Walker M, Gao Y, et al. A systematic review and network meta-analysis comparing the use of Foley catheters, misoprostol, and dinoprostone for cervical ripening in the induction of labour. *BJOG* 2016; 123: 346-54.
9. Morris JL, Winikoff B, Dabash R, Weeks A, Faundes A, Gemzell-Danielsson K, Kapp N, Castleman L, Kim C, Ho PC, Visser. FIGO's updated recommendations for misoprostol used alone in gynecology and obstetrics. *Int J Gynaecol Obstet* 2017; 138(3): 363-6.