



Induction of labour using a double balloon device: a retrospective cohort study

Dr.Mary Guirguis , Ms.Monalisa Neogi , Mr.Surajit Das

ABSTRACT

Objective:
To determine the efficacy of double balloon catheter(Cooks balloon) using 40 mls of saline in mechanical dilatation of cervix for induction of labour(IOL).

Design:
A retrospective Cohort study was conducted of women who underwent IOL with balloon catheter over a period of 6 months (January to July 2020), to evaluate the usefulness of balloon device using 40 mls saline.

Methods:
A total of 119 women had cooks balloon for IOL. 40 mls of normal saline was used to inflate each; the uterine and the vaginal balloon. The catheter was removed 12 to 24 hours later, patients had an artificial rupture of membranes(ARM) and oxytocin was started as per induction protocol. Study subjects were identified in a local computerized system and data extracted from the medical records.
Inclusion criteria were a singleton pregnancy, vertex presentation and intact membranes. Patients with polyhydramnios, two previous lower segment transverse or one classical Caesarean section(CS) were excluded.

Results:
119 women were induced, 57% were primiparous and 43% were multiparous. The mean gestation was 39 weeks and 6 days .The mean maternal age was 29 years. The main indications of IOL were; postdates (31.9%), DFM (11.7%), GDM (9.2%), large for dates (9.2%), SGA (8.4%), Maternal age (4.2%), obstetric cholestasis (4.2%), hypertensive disorders in pregnancy (5.8%), mental health, history of stillbirth and others (9.2%).
The balloon fell out in 34.45% within a mean of 12 hours, and it was removed in 65.5% after a mean of 16 hours. After removal of balloon; 102 women had ARM, and 8 women had Prelabour rupture of membranes(PROM). In cases where ARM was not possible; 6 were given dinoprostone gel, 2 patients declined further IOL and opted for CS.
The average time from removal or falling out of balloon to ARM was 2 hours 47 minutes; the maximum time was 15 hours; due to acuity on delivery suite. The average time from ARM or PROM to delivery was 10 hours. 66.4% had vaginal birth, of these; 14.2% had instrumental deliveries. 33.6% had CS which is comparable to national average rate of CS for IOL.

Conclusion:
IOL was successful in 85% cases. The method is safe and well tolerated by most women. It is especially advantageous in patients where dinoprostone is best avoided such as IUGR, oligohydramnios and previous CS. This is a descriptive study; a comparative study will be conducted to compare two methods of IOL.

INTRODUCTION

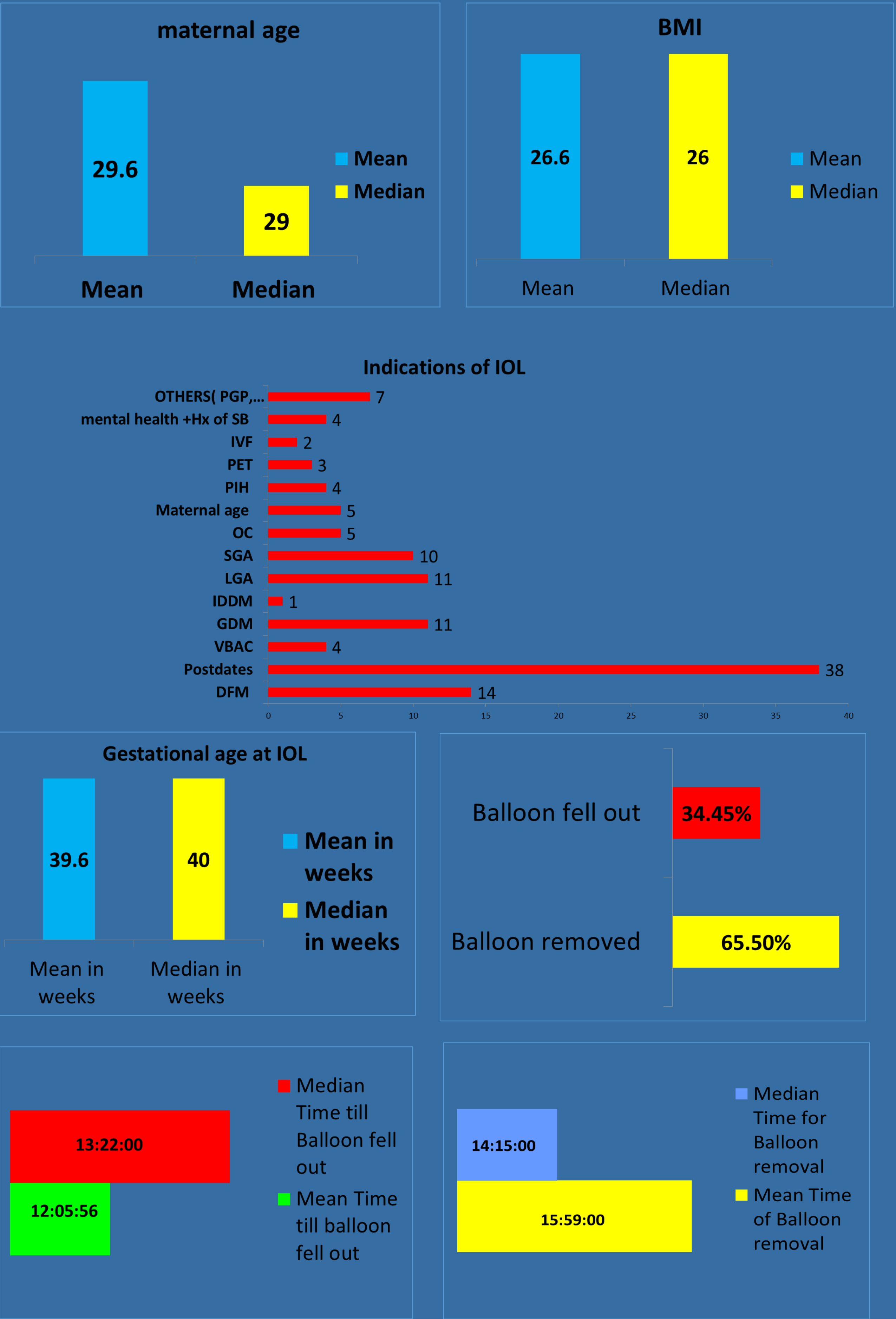
Induction of labour remains one of the challenges in obstetrics. The success of induction depends on the cervix at the start of the induction process. Induction of labour in the presence of an unripe cervix results in a longer labour and a higher incidence of Caesarean section. Various methods of cervical ripening have been developed to improve the chance of successful induction of labour. Currently the most commonly used method is intravaginal application of prostaglandin E2. However, there are risks associated with this method like tachysystole and hyperstimulation and can even lead to placental abruption. This might cause extra risk to the foetus who may already be compromised by the underlying reason for induction of labour like IUGR(intrauterine growth restriction).
We report our experience with retrospective Cohort study of 119 women undergoing IOL for various reasons over a period of 6 months (January to July 2020), to evaluate the usefulness of balloon device using 40 mls saline before initiating a comparative study.

METHODS AND MATERIALS

A total of 119 women had cooks balloon for IOL. 40 mls of normal saline was used to inflate each; the uterine and the vaginal balloon. The catheter was removed 12 to 24 hours later, patients had an artificial rupture of membranes(ARM) and oxytocin was started as per induction protocol. Study subjects were identified in a local computerized system and data extracted from the medical records.
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RESULTS

119 women were induced, 57% were primiparous and 43% were multiparous. The mean gestation was 39 weeks and 6 days .The mean maternal age was 29 years. The main indications of IOL were; postdates (31.9%), DFM (11.7%), GDM (9.2%), large for dates (9.2%), SGA (8.4%), Maternal age (4.2%), obstetric cholestasis (4.2%), hypertensive disorders in pregnancy (5.8%), mental health, history of stillbirth and others (9.2%).
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DISCUSSION

The cooks double balloon device induces significant dilatation of the cervix when used for induction of labour. Induction of labour was successfully achieved in 85% cases with Cooks balloon device.The rate of Caesarean section was 33.6% which is comparable to national average for rate for Caesarean section for induction of labour.
The Cooks double balloon device did not cause discomfort such as that caused by pharmaceutical methods of induction.The method is safe and well tolerated by most women.

The Cooks double balloon device was successfully used with all indications for induction. This method is especially advantageous in patients where hormonal methods are best avoided such as IUGR, oligohydramnios and previous Caesarean section.

The mechanism of action of this device is mainly by causing mechanical dilatation by applying pressure on external and internal os and may cause cervical pressure which may release endogenous prostaglandins.

The rate of patients who could have an ARM after cooks balloon was high, making it an appealing version. Also it works quickly avoiding multiple examinations and doses of prostaglandins. The current study is mainly a descriptive study of our experience. A comparative study will be necessary to give a reliable comparison of the two methods of induction of labour.

CONCLUSIONS

IOL was successful in 85% cases. The method is safe and well tolerated by most women. It is especially advantageous in patients where dinoprostone is best avoided such as IUGR, oligohydramnios and previous CS. This is a descriptive study; a comparative study will be conducted to compare two methods of IOL.

