Induction audit of choice and outcomes of cervical ripening post introduction of CRB as the primary method

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Introduction

There is a broad range of methods available for induction of labour. The optimum method of induction of labour (IOL) may be dependent on a combination of clinical indication and patient factors.

Objective

The aim of this study is to compare maternofetal outcomes before and after the introduction of CRB (cervical ripening balloon) as the primary method of IOL at a regional tertiary centre.

Methodology

A retrospective chart review of women undergoing IOL in two time periods, September 2022-November 2022 and January 2023-March 2023 was undertaken. The inclusion criteria was live singleton cephalic pregnancies.

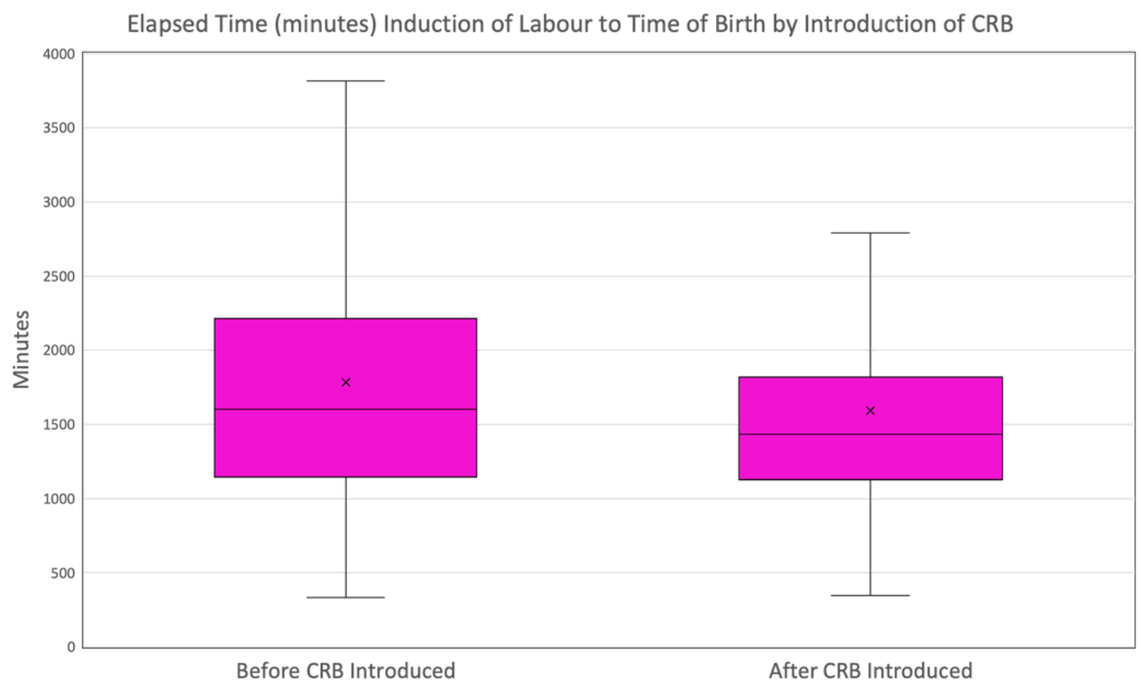
The main maternal outcomes studied were rates of hyperstimulation, need for additional ripening agents, mode of delivery, time to delivery in hours, post-partum haemorrhage (PPH) rates. The fetal outcomes studied were APGAR at 5 mins 7, cord gases and special care nursery admission.

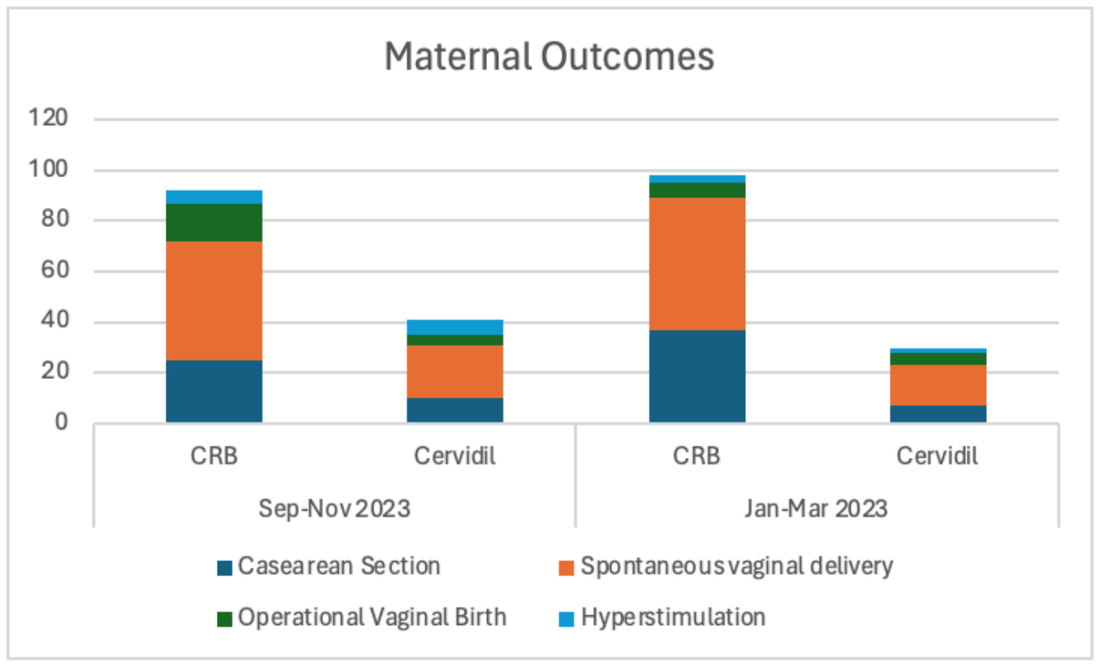
Discussion

Retrospective local studies have shown CRB to have higher unassisted vaginal birth, lower estimated blood loss, lower occurrences of fetal acidaemia and higher vaginal delivery within 24 hours compared to prostin gel. [1] A recent 2018 meta-analysis has shown no significant difference between efficiency or safety outcomes between CRB and cervidil. [2]

Analysis

We compared 123 women versus 124 women for IOL who needed either CRB, cervidil or prostin gel. When CRB was used as the primary method of IOL from January 2023, usage increased from 70.7% to 76.6%, there was a reduction in operative vaginal birth (6.3% vs 17.2%), shorter IOL to time of birth (1558 minutes vs 1693, p=0.06) and no use of additional ripening agents (0% vs 17.2%). We also found a shorter IOL to birth time in CRB compared to cervidil (mean of 1558 minutes vs 1725 minutes).





Time period	Sept - Nov 2022 (N= 123)			Jan – March 2023 (N= 124)		
	CRB N = 87 Mean (SD)	Prostin N =1 Mean (SD)	Cervidil N = 35 Mean (SD)	CRB N = 95 Mean (SD)	Prostin N = 1 Mean (SD)	Cervidil N = 28 Mean (SD)
Fetal outcomes						
Gestation	39+1	40+1	39+4	39+3	39+3	39+5
Birthweight	3398	2860	3609	3398	3245	3603
EBL at delivery (mL)	470	500	460	424	2200	523
PPH >1000mls	7 (8%)	0	2 (5.7%)	8 (8.4%)	1	3 (10.7%)
Epidural	52 (59.8%)	1	16 (45.7%)	51 (53.7%)	1	9 (32.1%)
Cord pH < 7.1	2 (2.3%)	0	1 (2.9%)	6 (6.3%)	0	3 (10.7%)
Apgar at 5 minutes < 7	1 (1.1%)	0	1 (2.9%)	3 (3.2%)	0	2 (7.1%)
Nursery admission	13 (14.9%)	0	7 (20%)	20 (21.1%)	0	5 (17.9%)

Table 1: Fetal outcomes of different methods of Induction of Labour

Conclusion

Our study has shown an increased use of CRB after its implementation as the primary method of ripening agent, however it is evident the other chemical methods are still used for clinical reasons such as a high disengaged head at commencement of IOL. Studies have shown CRB to be superior to prostin, but similar to cervidil in terms of maternofetal outcomes. [1, 2] Although more data is invariably needed to compare the methods, CRB consistently proves to be safe & efficacious.

[1] L. Zhu, C. Zhang, F. Cao, Q. Liu, X. Gu, J. Xu, J. Li, Intracervical Foley catheter balloon versus dinoprostone insert for induction cervical ripening: A systematic review and meta-analysis of randomized controlled trials. Medicine (Baltimore) 2018, 97, e13251.
[2] J. Brown, M. Beckmann, Induction of labour using balloon catheter and prostaglandin gel. Aust N Z J Obstet Gynaecol 2017, 57, 68-73.