

# Balloon labour induction and the price of elegance

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## **BJOG perspectives**

### **Balloon labour induction and the price of elegance**

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Running title: Foley catheter balloon for labour induction

The story of labour induction with a balloon serves as a cautionary tale on several levels. Documented balloon labour induction dates to the mid 1800's, though whether Barnes, Storer or Mattei was first in line is disputed. Modern day use of the 30ml Foley catheter balloon for labour induction with an unfavourable cervix was described in 1967 (Embrey MP et al, BJOG 1967; 74:44-48). Around the same time, prostaglandin labour induction was pioneered by Karim in Uganda, Embrey in Oxford, Bygdeman in Stockholm and later Calder in Edinburgh (Calder A A et al, BJOG 1977; 84:264-8). The awkward Foley balloon was side-lined by all who could afford the more elegant pharmacological alternative. Marketing may have played a part.

In poorer settings, the 1990's saw the prostaglandin analogue misoprostol (the 'People's Prostaglandin') usurping the place of the Foley balloon (Hofmeyr GJ et al. BJOG 1999;106:798-803). We could at last aspire to the prostaglandin 'gold standard' which had been unaffordable for years. Of course, the reason misoprostol was affordable was that it was not registered for labour induction. The costly, systematic pre-registration evaluation of safety and dosage had been skipped. A global pandemic of ruptured uteri raged until a safe-ish dose was identified by clinical trial and error on a monumental scale. Maternal deaths from uterine rupture have since been reduced, but not eliminated.

Only after decades of flirtation with prostaglandins and their analogues did evidence gradually emerge that something as devoid of elegance as a cervical balloon was in fact safer than exogenous prostaglandins (Du YM et al, BJOG 2017; 14:891-9) (figure 1), even safe enough for use in an outpatient setting. The purpose-designed double balloon catheter has not been found to be more effective than a standard 30ml Foley catheter bulb.

Compared with vaginal prostaglandin E2, balloon labour induction reduces the risk of uterine hyperstimulation and severe neonatal morbidity/death. When in haste, adding a foley balloon to misoprostol speeds up labour induction and reduces uterine hyperstimulation and neonatal intensive care admission. Increased meconium passage with prostaglandins versus balloon induction is usually assumed to be linked to uterine hyperstimulation, but we have suggested that it may be a direct prostaglandin effect on fetal bowel smooth muscle.

Having arrived at the beginning, we should not be surprised that mechanical stimulation of endogenous prostaglandins proves to be safer than pharmacological uterine stimulation.

Could balloon induction also be safer than amniotomy and oxytocin for labour induction with a favourable cervix, particularly in higher-risk situations such as previous caesarean section and potential fetal compromise? A technical limitation with a favourable cervix is that a standard Foley balloon may not be retained long enough for labour to be triggered and progress without pharmacological stimulation. The side-by-side Foley balloon technique (Hofmeyr GJ and Dalmacio R, BJOG submitted for publication) may be a useful innovation to test in trials to determine whether balloon labour induction has safety advantages for women with favourable cervixes as well.

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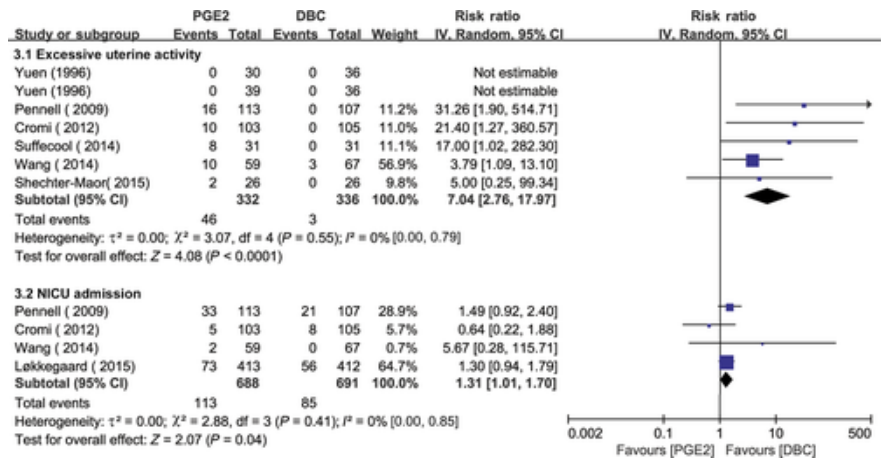
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**Contribution of author**

GJH conceived and wrote the paper.

**Disclosure of interests**

The author has no competing interests to declare.



**Figure 1**

Forest plot showing the use of prostaglandin E2 (PGE2) agents versus the double-balloon catheter (DBC) for the cervical ripening and labour induction on the likelihood of (3.1) excessive uterine activity and (3.2) neonatal intensive care unit (NICU) admission (Du YM et al, BJOG 2017; 14:891-9)