

Maternal and Fetal Outcomes following the use of Fetal Pillow® in Fully Dilated Caesarean Section



Nicole Ho, Katherine Artis, Tapasi Bagchi

Department of Obstetrics & Gynaecology, Royal Brisbane and Women's Hospital

Email: Nicole.Ho@health.qld.gov.au

Introduction

A caesarean section is an operation in which a baby is born through an incision made through the mother's abdomen and the uterus¹. A caesarean section may be performed electively or indicated in an emergency setting. Despite attempts to reduce caesarean delivery rates, overall there has been a gradual rise in the frequency of caesarean delivery in most high-income countries². Caesarean sections are commonly performed in developed countries and are safe however there is a risk of maternal and neonatal complications.

In addition, the rates of caesarean delivery during the second stage of labour has also increased, with some studies showing their rise disproportionately high³. Caesarean sections at full dilatation are associated with higher rates of maternal and neonatal complications⁴. Fetal Pillow® is a single use silicone balloon device that inflates when filled with saline to elevate the fetal head for an easier delivery with the aim to reduce maternal and fetal morbidity⁵. Fetal Pillow® has increasingly been used to assist with disimpaction of the fetal head and assist with the abdominal delivery⁶. This study evaluates maternal and fetal outcomes by comparing the use of Fetal Pillow® or not in Caesarean section deliveries at full cervical dilatation.

Methods

A retrospective audit of caesarean section deliveries at the Royal Brisbane and Women's Hospital was conducted from 2014 to 2017.

Singleton pregnancies delivered by Caesarean section at full cervical dilatation for failure to progress, fetal distress and failed instrumental deliveries were included. Data was extracted from electronic and paper charts.

Women were stratified into two groups: Fetal Pillow® and no Fetal Pillow®. T test was used to assess the significance of maternal and fetal outcomes by comparing both groups.

References

1. RANZCOG. Caesarean section pamphlet. Patient information. 2016
2. Betran et al. The increasing trend in caesarean section rates: global, regional and national estimates: 1990–2014. Public Library of Science 2016
3. Unterscheider et al. Rising Rates of Caesarean Deliveries at Full Cervical Dilatation: A Concerning Trend. Obstetrical & Gynecological Survey 2011
4. Jevc et al. Comparison of techniques used to deliver a deeply impacted fetal head at full dilatation: a systematic review and meta-analysis. BJOG: An International Journal of Obstetrics & Gynaecology 2015
5. Seal et al. Randomized controlled trial of elevation of the fetal head with a fetal pillow during cesarean delivery at full cervical dilatation. International Journal of Gynecology & Obstetrics 2016
6. RANCOG. Delivery of the fetus at caesarean section. 2017

Results

399 patients met the inclusion criteria; 226 (56.6%) underwent a caesarean section at full cervical dilatation using a Fetal Pillow® and 173 (43.3%) without a fetal pillow. The Fetal Pillow® group was not less likely to be complicated by a uterine tear ($p=0.2028$), postpartum haemorrhage (PPH - blood loss $\geq 1000\text{mL}$) ($p=0.2521$) or require a transfusion ($p=0.1692$) compared to the no Fetal Pillow® group.

The Fetal Pillow® group was also not less likely to have a 5 minute APGAR score ≤ 5 ($p=0.4311$), require an admission to NICU ($p=0.1922$) for a duration for ≥ 24 hours ($p=0.4582$) or sustain trauma during the Caesarean section birth compared to the no Fetal Pillow® group.

Morbidity	Test	Control	P-value
Uterine tear	30	31	0.2028
PPH ($\geq 1000\text{mL}$)	31	31	0.2521
Blood transfusion	3	6	0.1692
5-minute APGAR ≤ 5	1	2	0.4311
Admission to NICU	11	14	0.1922
Duration of NICU stay $\geq 24\text{hr}$	2	3	0.4582

Table 1: Maternal and fetal outcomes in fully dilated Caesarean sections using fetal pillow and no fetal pillow

Conclusion

The use of Fetal Pillow® in Caesarean sections at full cervical dilatation does not reduce maternal and fetal morbidity compared to Caesarean sections at full cervical dilatation without the use of Fetal Pillow®. Further analysis following additional data extraction, may help improve the validity of these results.

