

PT-168

## **Vacuum-Assisted Delivery of the Fetal Head at Cesarean Section**

Ross W. McQuivey MD, Clinical Innovations Inc., Murray, UT USA

Vincent Laporte MD, Marshall, Minnesota, MN USA

Aldo Vacca MD, Royal Brisbane Women's Hospital, Queensland, Australia

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### **Introduction**

The cesarean section rate continues to climb. However, this surgical procedure is not without risk; one such risk is the traumatic or deliberate extension of the uterine incision while attempting to deliver the fetal head. Techniques to effect delivery under these circumstances have included pressure on the uterus, the use of a forceps blade/s, or additional incisions in the uterus; all of which can be traumatic to both mother and fetus. We sought to compare the safety and efficacy of delivery of the fetal head at cesarean section using the vacuum extractor (Kiwi® OmniCup®, Clinical Innovations, Inc) and the traditional method of manual extraction.

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### **Methods**

A cohort design was used in this study. Women at term, with singleton gestations and requiring a cesarean section for delivery, were recruited to participate. The primary outcome measures included estimated blood loss for the procedure, evidence of uterine/cervical lacerations, neonatal APGAR scores, and neonatal trauma (including evidence of scalp abrasions, bruising, cephalohematoma, subgaleal or intracranial hemorrhage). In addition, position of cup application and the number of cup detachments were recorded in the study group.

### **Results**

A total of 50 women were included in the study (25 where the Kiwi® OmniCup® was used to assist delivery of the fetal head and 25 where manual extraction was used). The estimated blood loss was less in the study group (680.9cc vs. 810.0cc;  $P < 0.04$ ).

In the manual extraction group, 4 of 25 women had uterine extensions, and 1 of the 25 had a cervical laceration documented at the time of surgery. There were no uterine extensions or cervical lacerations evident in the study group (use of the

Kiwi® OmniCup®). Neonatal outcomes revealed no difference between the two groups in APGAR scores or birth weight (7.67 lbs vs. 7.85 lbs;  $P < 0.62$ ), but there were slightly more scalp effects (bruising, abrasion, and chignon) in the study group (3 vs 0).

The 3 reported scalp effects in the study group were all minor and spontaneously resolved within 1 week. They were related to malpositioning of the cup and subsequent pop-offs during the delivery. Those cups that were appropriately placed over the flexion point (three centimeters anterior to the posterior fontanelle along the sagittal suture) revealed no pop-offs or evidence of scalp trauma.

### **Conclusions**

This study showed that the use of the vacuum extractor at time of cesarean section is a safe and effective method to affect delivery of the fetal head. It limits the traumatic extensions of the hysterotomy and provides a less invasive alternative for the surgeon. Given the increasing rate of cesarean sections worldwide, it is important to evaluate alternative techniques for this antiquated method of delivery.