Reviewer's report

Title: The effects of spinal anaesthesia for elective caesarean section on uterine and umbilical arterial pulsatility indexes in healthy and hypertensive pregnant women: an observational study.

Version: 1
Date: 11 April 2014
Reviewer: Stephen Halpern

Reviewer's report:

The purpose of this study was to determine the effect of spinal anesthesia on uterine and umbilical blood flow in normal and hypertensive patients undergoing elective cesarean section. The primary outcome was the change in pulsatility index for the uterine arteries and umbilical arteries. The authors found that the mean arterial blood pressure fell significantly in both populations after the induction of spinal anesthesia. In normal women, the pulsatility index of neither the uterine arteries or umbilical artery changed. However in hypertensive women, there was a decrease in the uterine artery pulsatility index. The authors conclude that, in hypertensive patients the impedance in the uterine arteries is reduced.

In general, the study is well designed and well written. The question is well defined and the methods are appropriate. I am not in a position to comment on the analysis of this work, a statistician should be asked for their opinion. The purpose was to determine the effect of spinal anesthesia alone. This is very difficult considering, in the real world, vasopressors are commonly used but in this study patients that require vasopressors were eliminated.

Comments:

Discretionary Revisions

1) The classical teaching is that the placental bed, and therefore the uterine arteries are fully dilated, yet in the hypertensive patients, further dilation seems to be possible. This may, in fact improve the outcome of the fetus in patients with severe hypertension (see BMJ 2009;102(3):369-78). This may be a worthwhile discussion point.

Minor Essential Revision

2) Please report neonatal outcomes (cord gases, Apgar scores). Do these correlate with changes in pulsatility index?

Discretionary Revision

3) It seems to me that the pulsatility index may be dependent on the side on which the placenta is located. In the hypertensive patients, was the pulsatility index decreased on the placental side as well as the non placental side?

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.