Fetal macrosomia (usually defined as an estimated fetal weight or birthweight >4000 g or ≥4500 g) is associated with various perinatal complications. Irrespective of which weight threshold is used, macrosomic fetuses have higher rates of shoulder dystocia and subsequent birth trauma than do non-macrosomic fetuses. Additionally, women with macrosomic fetuses are at high risk of caesarean deliveries and other complications, such as postpartum haemorrhage and venous thromboembolism. One of the strongest risk factors for fetal macrosomia is prepregnancy obesity, but because preconception consultations are rarely done for most obese women, the best way to prevent fetal macrosomia is with close counselling and follow-up of women throughout pregnancy to provide advice on avoiding weight gain in excess of guidelines for gestational weight gain from the US Institute of Medicine.

However, despite doctors’ best efforts, macrosomic fetuses will still develop in term pregnancies. One approach to the safe delivery of macrosomic or large-for-gestational-age fetuses has been to induce labour before the fetus crosses a weight threshold of clinical concern. Yet findings from retrospective studies have shown no benefit of induction of labour for fetal macrosomia compared with spontaneous labour. In fact, one study reported increased rates of caesarean deliveries with labour induction, with no reductions in birth injury. Similarly, a randomised controlled study that examined the effect of induction of labour versus expectant management, in women without diabetes but with suspected fetal macrosomia, reported no statistically significant difference in rates of caesarean delivery (19.4% for the induction group and 21.6% for the expectant management group) or shoulder dystocia.

What is the difference between retrospective studies and randomised trials that compare induction of labour? In the clinical environment, doctors and patients are faced with a choice between induction of labour and expectant management. Expectant management includes spontaneous labour, but can also lead to the development of pregnancy complications and increased fetal growth. Hence, most observational studies of induction of labour have used spontaneous labour instead of expectant management. However, in a study that assessed induction of labour at a specified macrosomic birthweight and compared this intervention with expectant management to a greater gestational age and greater birthweight, women undergoing induction of labour had lower rates of caesarean delivery; but fetal birth injury did not differ between groups. Part of the problem of such studies is that induction was not used until fetal macrosomia was already suspected. This has led to a practice of inducing women whose fetuses have so-called impending macrosomia—an approach that would make sense if a good way to identify such fetuses existed, but lacking evidence-based support. In The Lancet, Michel Boulvain and colleagues report a well powered, multicentre, randomised controlled trial of induction of labour versus expectant management for women at 37–39 weeks of gestation, with fetuses whose weights exceeded the 95th percentile or above for estimated weight. That is, the fetuses were not suspected of being macrosomic, but instead of having impending macrosomia. The primary outcome was a composite of clinically significant shoulder dystocia, fracture of the clavicle, brachial plexus injury, intracranial haemorrhage or death. In the induction of labour group, 366 (90%) of 407 women were induced, whereas only 116 (28%) of 411 women were induced in the expectant management group. The investigators showed that neonates born to women in the induction of labour group had a lower risk of the primary outcome than did those born to women in the expectant management group (n=8 vs n=25; relative
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risk 0·32. 95% CI 0·15–0·71) and a lower risk of any shoulder dystocia (15 vs 32; 0·47, 0·26–0·86). Neonates in the induction group had a lower mean birthweight than did those in the expectant management group (3831 g [SD 324] vs 4118 g [392]), and a significantly higher proportion needed phototherapy to treat hyperbilirubinaemia (45 vs 27; p=0·03). However, neither transient tachypnoea of the newborn nor respiratory distress syndrome differed between the groups. Additionally, the difference in risk of caesarean delivery was not statistically significant, although the absolute rate was lower for the women who were assigned to induction of labour than for those assigned to expectant management.

In view of the existing focus on prevention of non-medically indicated induction of labour, Boulvain and colleagues’ trial presents timely evidence of the potential benefit of induction of labour for prevention of adverse outcomes. A previous trial that focused on prevention of caesarean deliveries by induction of labour in at-risk women reported that women who were induced had a better neonatal adverse outcome index (1·4 vs 8·6, p=0·03) compared with those managed expectantly. As in Boulvain and colleagues’ trial, many women in the previous trial were induced before 39 weeks of gestation. Notably, in one of the most cited studies that led to a push towards reduction before 39 weeks of gestation, the population was composed of women who had a caesarean delivery, whose neonates have increased rates of transient tachypnoea of the newborn. Ultimately, the fundamental question is of the number needed to prevent a rare outcome; what are the trade-offs between the benefits and risks of intervention versus expectant management? Are the outcomes worth the induction of 25 women to prevent one case of shoulder dystocia? Is treatment of an additional neonate with phototherapy worth the prevention of a case of shoulder dystocia? The findings of the accompanying study raise these underlying clinical questions.

Although Boulvain and colleagues’ study is the first to show a reduction of shoulder dystocia with induction of labour in the setting of impending macrosomia, with existing guidelines for gestational age, expansion of this practice would need to be restricted to 39 weeks of gestation and beyond to avoid any increase in neonatal complications of prematurity. However, to wait until 39 weeks of gestation might also decrease the benefit for shoulder dystocia. Thus, these findings place clinicians and their patients in a difficult position—intervention better than expectant management for impending macrosomia, and at what gestational age should it be done? Findings from the present study provide evidence to counsel patients, but do not establish what is best practice. How these findings will be incorporated into worldwide guidelines for care will be very interesting. Clinicians will need to consider carefully how estimated fetal weight is measured and the effect of variations in the practice of induction of labour. Before guidelines are changed, clinicians and patients will need to engage in shared medical decision making based on a common theme in obstetrics—imperfect, but intriguing, new evidence.

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I declare no competing interests.


Published online April 9, 2015  http://dx.doi.org/10.1016/S0140-6736(14)62302-3