

## EDITORIAL

# What is the optimal gestational age for delivery?

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In the most recent Technical Bulletin on post-term pregnancy, the American College of Obstetricians and Gynecologists reiterated the threshold of 42 weeks of gestation as the definition of post-term pregnancy.<sup>1</sup> When considering at what gestational age to call a halt to expectant management, one needs to balance the risks and benefits of induction of labor versus expectant management. Thus, the continued use of 42 weeks is particularly surprising in the face of an abundance of research demonstrating that induction of labor at 41 weeks of gestation and beyond leads to lower rates of neonatal morbidity and lower rates of cesarean deliveries.<sup>2,3</sup> Given this evidence, it seems likely that at 41 weeks of gestation, the best evidence-based practice is induction of labor, regardless of cervical exam. The real controversy remains, what is the optimal management of pregnancies at term prior to 41 weeks of gestation?

Before 41 weeks of gestation, a number of complications of pregnancy, both maternal and neonatal, increase with increasing week of gestation.<sup>4–6</sup> The existing evidence suggests that most complications of pregnancy are minimized at about 39 weeks of gestation. If this is so, then why not simply induce all women at 39 weeks of gestation? Up to this point, the major concern has been potentially increasing the risk of cesarean delivery in women undergoing an induction of labor. As a cesarean in the current pregnancy increases the risk of maternal complications<sup>7</sup> as well as maternal and neonatal risks in future pregnancies,<sup>8,9</sup> avoiding an increased risk of cesarean is wise.

In the current edition of the *Journal of Perinatology*, Nicholson *et al.*<sup>10</sup> estimate the optimal gestational age of delivery with respect to maternal and neonatal outcomes. Although they are only powered to look at a few of the feasible outcomes, they consistently find that the overall optimal gestational age is less than 40 weeks of gestation. In the low-risk pregnancy group, they estimate it to be between 38 and 39 weeks of gestation. In women 35 years of age and older, they estimate the optimal gestational age right at 39 weeks of gestation. In women with hypertension, they estimate the optimal gestational age to be between 39 weeks and 2 days and 40 weeks and 1 day. Finally, only women with diabetes had an optimal gestational age estimated to be greater than 40 weeks of gestation, between 40 and 41 weeks. Interestingly, this last group is the one that is commonly induced early owing to ongoing increased risk of stillbirth as well as concern for macrosomia.

This paper adds to the existing evidence that delivery before a gestational age of 41 or 42 weeks leads to improved maternal and neonatal outcomes. However, what about the increased risk of cesarean delivery associated with induction of labor? Interestingly, the evidence is primarily from retrospective studies.<sup>11,12</sup> Such studies compare women who were induced to women undergoing spontaneous labor. In the studies controlling for gestational age, women undergoing induction were compared to those undergoing spontaneous labor at the same gestational age. Unfortunately, women and their providers do not have the option of choosing induction of labor or spontaneous labor at the same gestational age. Rather, they must balance the risks and benefits of induction of labor today versus spontaneous labor at some future gestational age, similar to what could be examined by a prospective, randomized trial.

In the few prospective, randomized trials of induction of labor for women with either diabetes<sup>13</sup> or impending macrosomia,<sup>14</sup> the prospective trials have not demonstrated an increased risk of cesarean delivery. Another study comparing women induced at an earlier gestational age to those at subsequent gestational ages also demonstrated no increased risk of cesarean in those women undergoing induction of labor.<sup>15</sup> Furthermore, a retrospective study on induction of labor in women at higher risk for cesarean delivery demonstrated a risk reduction in the group that undergone induction.<sup>16</sup>

Given these existing studies and their findings, it is paramount that larger studies are conducted to examine this question. The evidence favors induction of labor at 41 weeks of gestation and beyond. Before 41 weeks of gestation, it appears that maternal and neonatal outcomes could be improved in term pregnancies if there were a way to induce labor without increasing the risk of cesarean birth, but current evidence regarding this issue is mostly retrospective. Although induction of labor may cost more than awaiting spontaneous labor,<sup>17</sup> the question of cost-effectiveness can also be addressed by a large, prospective, randomized trial. Such a study should also address whether optimal care for different at-risk subgroups can be achieved with induction of labor at different gestational ages. Until the time that such questions are answered, it is incumbent upon each clinician to utilize the existing evidence to manage pregnancies at term.

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