EDITORIAL

Preventive Induction of Labor: Potential Benefits if Proved Effective

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The cesarean delivery rate in the United States has risen from 5.5% in 1970 to reach its highest level yet of 30.2% in 2005,[1,2] despite a Healthy People 2010 goal of 15% for the primary cesarean delivery rate.[3] In addition, primary cesarean deliveries, which accounted for 20.6% of all deliveries in 2004, continue to climb, increasing by 5% annually.[4] At 1.2 million surgeries per year, cesarean delivery is the most common major surgery performed.

One possible reason for the rise in the cesarean delivery rate is that there may simply be an increase in the need for cesarean deliveries. Several potential mechanisms that could contribute to the increasing need for indicated cesarean delivery are increasing birth weight[5] and increasing maternal obesity and weight gain during pregnancy.[6] Another possibility might be a rise in elective cesarean delivery by maternal request (CDMR).[7] The topic of CDMR is currently of heightened interest, leading to a recent National Institutes of Health State-of-the-Science conference in March 2006. The concluding statement from this meeting was that future research is necessary to examine both the "current extent of CDMR and attitudes about it."[8] From one study, although most women would choose to achieve vaginal birth, those women who were interested in elective cesarean would do so for such reasons as scheduling and concerns about pain, as well as recovery from labor.[9] These potential concerns about vaginal delivery pale in comparison to the higher rates of maternal hemorrhage, infection, and even death associated with cesarean delivery.[10,11] Further, current cesarean delivery affects maternal and neonatal outcomes in subsequent pregnancies.[12,13]

One management scheme that may appease women interested in enhancing their chances of achieving vaginal birth while affording more control to the parturient with respect to scheduling is elective or preventive induction of labor. Although these 2 terms are occasionally used interchangeably, Nicholson et al describe a specific preventive induction of labor termed Active Management of Risk in Pregnancy at Term (AMORIPAT) in 2004.[14] Through the identification of women at higher risk for cephalopelvic disproportion or fetal intolerance of labor, they describe a protocol of induction of labor, commonly between 38 and 40 weeks of gestation, which in the study population led to lower rates of cesarean delivery. In this issue of the *Annals of Family Medicine*, they replicate their previous findings.[15] Again, they found lower rates of cesarean delivery, as well as lower rates of some measures of maternal and neonatal morbidity, without a concomitant rise in any of the complications.

Although the idea of preventive or elective induction of labor lowering cesarean delivery rates may challenge commonly held beliefs by clinicians, it is supported by a scant literature. Most retrospective studies have found a higher risk for cesarean delivery among inductions of labor.[16-18] Even so, several randomized trials of induction of labor in a number of subgroups that include postterm pregnancy, diabetic pregnancies, and large-for-gestational age fetuses suggest different results. Studies of pregnancies at or beyond 41 weeks of gestation have shown a decrease in cesarean delivery among women who have undergone induction of labor.[17,18] In a small study of elective induction of labor between 39 and 40 weeks of gestation, there was a trend toward lower cesarean delivery rates.[19] In pregnant women with diabetes[20] and presumed macrosomic fetuses[21] who have been induced, prospective trials

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report no statistically significant difference in rate of cesarean delivery. One way to reconcile the differences between the retrospective and prospective studies of the effect of induction of labor on cesarean delivery is the improper comparison by gestational age utilized by retrospective studies.[22] Prospective studies appropriately compare women who are induced with women who are expectantly managed, thus often progressing beyond the current gestational age. Because increasing gestational age is associated with increased risk of cesarean delivery,[23] it is likely that the prospective studies finding that women undergoing induction have similar or lower rates of cesarean delivery are more valid.

Thus, the work by Nicholson et al will, I hope, be supported by prospective trials that are currently underway. If their studies and those of others support the use of scheduled induction of labor to lower the cesarean delivery rate, then scheduled induction of labor may provide a tool for clinicians delivering babies to decrease both the maternal and neonatal complications in term pregnancies. There are several notes of caution, however. First, even with validation of this study, management of labor in academic studies may not be translated into all clinical settings. Second, induction of labor does appear more costly than spontaneous labor or elective cesarean,[24] so careful cost-effectiveness studies of this issue should be conducted.

Despite these concerns, it is my hope that elective and preventive induction of labor realizes the promise of lower rates of cesarean delivery, as well as lower rates of maternal and neonatal complications, thus providing an attractive alternative for women at the end of their pregnancies.

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