A protocol for use of oxytocin

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Induction or augmentation of labor with oxytocin occurs frequently in modern obstetric practice. With induction of labor in certain centers approaching 40% of patients and augmentation of labor being more the rule than the exception, it appears that oxytocin is now utilized in the majority of laboring patients. Despite this fact, there is less than consensus regarding the best nursing and physician practices with respect to the safe use and efficacy of this potentially dangerous drug. In this month's issue, Clark and colleagues report on a simple checklist protocol for the use of oxytocin in labor. As they astutely point out, variations in management that are lauded by many practitioners as “individualization” based on medical judgment and experience do not necessarily equate to best practice in clinical settings. One prominent example of this is well known to obstetric care providers is the fact that cesarean delivery rates for similar indications have remarkably high variation both between and within institutions. These differences appear to be more related to the individual healthcare provider, the patient specific socioeconomic group, the type of insurance, or teaching versus nonteaching hospital than to any specific clinical patient characteristics. In a similar fashion, there are multiple protocols for oxytocin administration, including “Low Dose,” “High Dose,” “Active Management of Labor,” and “Pit to Distress,” which can all be found in most hospitals. Yet, there is neither a consistent application of these oxytocin protocols for specific indications nor are there necessarily clinical benefits resulting from their implementation. Further, as a consequence of its frequent use, potential risk and association with increased uterine activity resulting in “hyperstimulation,” “polysystole,” or “fetal distress,” oxytocin use constitutes the basis for many claims of medical malpractice when the clinical outcome is deemed to be suboptimal.

The authors of this interesting report should be congratulated for the recognition of nonuniformity of oxytocin infusion among different healthcare providers. Yet, it appears that this lack of uniformity is perhaps clinically unimportant. Their simple approach provides specific conservative recommendations for both the initiation and maintenance of oxytocin, as well as nursing interventions when there is excessive uterine activity or nonreassuring fetal heart rate patterns. In their pilot program, both “pre-oxytocin” and “oxycytin in use” checklists were recorded in a prospective fashion by nursing personnel both prior to initiation of oxytocin and then every 30 minutes while oxytocin was being infused. Despite understandable clinical concerns expressed by caregivers prior to study initiation, this approach actually resulted in no change in either the duration of time from institution of oxytocin infusion until delivery or in the overall cesarean delivery rate. The mean maximum oxytocin infusion rate was significantly reduced. Furthermore, there appeared to be improved newborn outcomes with significantly fewer adverse results following protocol implementation. The multiple small differences in outcome measurements that favored the “conservative” check list group may well be significant with larger numbers. In fact, when this approach was subsequently applied to all Hospital Corporations of America hospitals, there was a significant reversal of the preceding year over year rise in cesarean delivery rates. It would be interesting if the authors have access to the same outcome data that were evaluated in their initial program to determine if a statistically significant improvement in neonatal outcomes could be demonstrated across the some 220,000 births in the year with the conservative check list compared to the preceding year.

The authors do not specify either the number of patients that received oxytocin for induction versus those receiving it for augmentation, or whether there were differences in outcomes between these 2 groups. They state there were uniform protocols for oxytocin infusion and mixing but do not specify what they were. As mentioned, it is unclear as to whether these are significant issues or not. They also do not specify the number of patients who had oxytocin stopped or reduced and for what reason (ie, uterine activity or fetal heart rate concerns). It is unclear what is meant by “reduced,” or at what level oxytocin was reinitiated when restarted. With improvements in external fetal monitors, there appears to be a general reluctance to use the fetal scalp electrode or the intrauterine pressure catheter for intrapartum monitoring. This is particularly troubling in the setting in which the data recorded are clearly not adequate for patient management. It would be interesting to know what proportion of patients in this study had external fetal and uterine contraction monitoring versus internal. A comparison of intervention frequency between patients with external uterine contraction monitoring with those having internal monitoring might have specific clinical relevance.

Overall, this study represents an important contribution to the basic patient management protocols for oxytocin infusion and should be seriously considered by all individuals and institutions providing labor and delivery services. It addresses the point that for patients receiving oxytocin, the response of the
uterus and the fetus is far more important than the overall amount or rate of oxytocin infusion. As clinicians, our focus needs to shift to this response factor rather than focusing only on the infusion pump setting or drug concentration. We must agree to certain management standards and utilize specific guidelines as part of our routine in the delivery of obstetric care. As is noted several times in this paper, we can learn a great deal from the success of the airline industry in the utilization of highly standardized protocols and checklists in the management of potentially critical situations. This study, which uses a checklist for oxytocin administration, is an example of how medical “best practices” can lead to both clinically uniform management and better outcomes for our patients.

REFERENCES