What is the significance of the head-to-body delivery interval in shoulder dystocia?

A longer interval may be more likely to lead to persistent brachial plexus injury and neonatal depression, according to this observational case-control analysis.


EXPERT COMMENTARY
William A. Grobman, MD, MBA, Associate Professor of Obstetrics and Gynecology, Feinberg School of Medicine, Northwestern University, Chicago, Ill.

Shoulder dystocia is a well-described obstetric complication that occurs in approximately 1% of deliveries.¹ It has been associated with adverse maternal outcomes as well as adverse perinatal outcomes, including fracture, nerve palsy, and hypoxic ischemic encephalopathy.

Although multiple risk factors for shoulder dystocia have been described, experts have not yet been able to combine them into an accurate, discriminating, clinically useful shoulder dystocia prediction model; therefore, shoulder dystocia remains an unpredictable event.² We also lack a strategy to prevent shoulder dystocia. Because we cannot predict or prevent it, a provider’s response to shoulder dystocia, once it occurs, is seminal, in terms of management.

Details of the study
As Lerner and colleagues concisely state, when shoulder dystocia occurs, there is a need for caution in the application of force during maneuvers and a “countervailing need to achieve delivery.” It is in a provider’s interest, then, to have knowledge of whether there is a time at which that countervailing need to achieve delivery takes on greater relative significance.

In an effort to address this issue, the authors examined the relationship between the duration of shoulder dystocia and neonatal depression (defined as the need for cardiopulmonary resuscitation or intubation; a pH level below 7.0; an Apgar score below 6 at 5 minutes; or death). In their study, 127 births involving uncomplicated shoulder dystocia (i.e., no evidence of neonatal trauma or depression) from a single institution were compared with 55 births involving complicated shoulder dystocia (i.e., the occurrence of brachial plexus palsy with or without neonatal depression).

Lerner and colleagues found a correlation between the duration of shoulder dystocia and the extent of neonatal complications. For example, the median interval from head-to-body delivery for uncomplicated births was 1.0 minute; for births complicated by brachial plexus palsy alone, it was 2.0 minutes; and for births complicated by brachial plexus palsy and neonatal depression, the interval was 5.3 minutes ($P < .001$). There was no single cutoff, however, that was completely discriminating with regard to whether neonatal depression would occur.
Although shoulder dystocia occurs in approximately 1% of births, major adverse perinatal outcomes occur in only a fraction of these cases.