

Strategies for Reducing Adverse Patient Outcomes in Obstetrics

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Identifying patient risks and taking steps to reduce adverse outcomes are essential in the ObGyn practice.

The aim of this discussion is to identify several situations that are associated with increased obstetric risks and to review potential strategies to reduce the risk of adverse patient outcome and liability claims.

In 2009 ACOG surveyed the membership regarding professional liability issues.¹ Of the 5,632 ACOG Fellows and Junior Fellows who responded, 90% reported at least one claim filed against them over the preceding 3 years (43% had at least one claim for care provided during residency training).

In the 3 years preceding the survey, 62% of claims were obstetric. Of these, the top primary allegations were neurologically impaired infants (31%) and stillbirth/neonatal death (16%). Other primary factors contributing to these claims include electronic fetal monitoring (EFM; 24%), shoulder dystocia/large infant/large for gestational age (17%), and actions of residents (16%).¹

Fetal monitoring/hypoxia (34%), minor injuries (24%), shoulder dystocia (14%), maternal injury/death (10%), and vaginal birth

after cesarean (VBAC) (5%) were identified as factors in another claims study.²

In a retrospective review of risk management files, about half of the cases were due to inpatient obstetric claims; 38% were from gynecology and 12% from office practice. Identifiable contributing factors involved problems with communication (31%), treatment and surgery (31%), diagnosis (18%), patient behavior (14%), and documentation by the providers (9%).³

The ObGyn specialty emphasizes evidence-based decision making. Data demonstrating enhancement of patient outcomes following implementation of systems-based safety measures are just beginning to be published in peer-reviewed journals. Obstetric team training is increasingly accepted as an integral component of patient safety algorithms in the labor and delivery setting. These teams often include nurses, physicians, and associates in anesthesia and pediatrics or neonatology.

One large health care delivery system developed and implemented checklist-driven protocols, procedure documentation templates, and mandatory educational modules, resulting in a reduced number of medical liability claims.⁴ Neonatal outcomes are reported for only one of the implemented protocols, and there were no significant improvements.⁵

Standardized order sets linked to all major areas of obstetric care were developed in another health care system. They incorporated these practices and reported a reduction in birth trauma rates.⁶ Additional research regarding the effect of im-

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Patient outcomes were enhanced after implementation of systems-based safety measures.

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plementation of systems-based safety measures on patient safety outcomes is essential to inform the development of appropriate protocols.

FETAL HEART RATE PATTERNS

Electronic fetal heart rate (FHR) monitoring is cited as a frequent contributor to obstetric claims. Common allegations include failure to accurately assess maternal-fetal status, failure to identify and appropriately manage a nonreassuring FHR, failure to correctly communicate maternal-fetal status to an obstetrician, and failure of an obstetrician to respond appropriately when notified of nonreassuring fetal status.

In 2008 the National Institute of Child Health and Human Development (NICHD) and several other national organizations reviewed and updated the definitions for FHR pattern categorization. They also assessed existing classification systems for interpreting specific FHR patterns and made recommendations about a system for use in the United States.⁷ The workshop proposed a 3-tier system for the categorization of FHR patterns, along with a description of that system.

Suggestions/Strategies

Successful programs have adopted a universal common language for FHR patterns and uterine activity for all professional communication and medical record documentation. It is critical that this common system be used by all obstetric professionals, including nursing staff. Many programs are available for training staff. Team cohesiveness can be promoted by training of all providers together. Other policies encourage or require individuals at all levels to interrupt a process if they believe it to be placing a patient at risk. There should be a clear delineation of responsibility in order to facilitate appropriate and rapid communication.

INDUCTION OF LABOR

Common allegations associated with induction of labor include failure to fully inform the patient about the risks and benefits of induction, failure to accurately determine gestational age, use of excessive doses of oxytocin, and failure to assess maternal and fetal status in labor. Assessment of

gestational age and consideration of any potential risks to mother or fetus are of paramount importance for appropriate evaluation and counseling before initiating cervical ripening or labor induction.

For years, ACOG has supported confirmation of a gestational age of 39 weeks or more by ultrasound obtained before 20 weeks, or auscultation of fetal heart tones for 30 weeks with Doppler ultrasonography, or elapse of 36 weeks since a positive pregnancy test.⁸ A recent multicenter cohort study confirmed other smaller, single-center data showing that some neonatal outcomes improve until 39 weeks, regardless of labor onset type.⁹

In 2009 the Joint Commission convened an advisory panel of experts in perinatal care. The panel selected a set of measures now referred to as “Perinatal Care” and included elective delivery (≥ 37 weeks and ≤ 39 weeks) as a performance measure.¹⁰

Suggestions/Strategies

Recommendations for appropriate patient selection should be followed, reducing the number of elective inductions, particularly prior to 39 weeks. Patients should be counseled regarding indications for induction, agents and methods of labor stimulation, and possible need for repeat induction and increased risk of cesarean delivery.⁸ This consent process should be documented in the chart. The admission history and physical exam should include assessment of the cervix, pelvis, fetal size, and presentation.

The FHR and contractions should be monitored and documented as is done for any high-risk patient in active labor. As with FHR monitoring, standardization of protocols reduces the potential risk for error. Personnel familiar with the effects of uterine stimulants on the mother and fetus should be available, as uterine tachysystole with FHR changes may occur with induction of labor. Although trained nursing personnel can monitor labor induction, a physician capable of performing a cesarean delivery should be readily available.⁸

OXYTOCIN FOR AUGMENTATION

Although oxytocin is used to induce or augment labor, its use is associated with an increased claim frequency. Common allegations include failure to accurately assess

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TABLE. Oxytocin Regimens

Regimen	Starting Dose (mU/min)	Increase (mU/min)	Dosage Interval (min)	Maximum Dose (mU/min)
Low dose	0.5–1	1	30–40	20
	1–2	2	15	40
High dose	~6	~6	15	~40
	6	6, 3, 1	20–40	42

maternal-fetal status during labor and use of excessive doses of oxytocin resulting in tachysystole of the uterus, with or without a nonreassuring FHR pattern. A full description of an EFM tracing requires a qualitative and quantitative description of uterine contractions. The recent NICHD consensus conference reviewed terminology regarding uterine activity.⁷

Uterine contractions are quantified as the number of contractions present in a 10-minute period, averaged over 30 minutes. Contraction frequency alone is a partial assessment of uterine activity, and qualitative assessments are also clinically relevant.⁷ Tachysystole is defined as more than 5 contractions in 10 minutes, averaged over a 30-minute window, whether labor is spontaneous or stimulated. Tachysystole should always be qualified as to the presence or absence of associated FHR decelerations.

A number of different oxytocin regimens have been evaluated in randomized clinical trials (Table).¹¹ High-dose regimens shorten labor and may reduce cesarean delivery, but they are also associated with an increase in tachysystole. Neonatal outcomes are similar with either regimen.¹¹

Researchers demonstrated that extending the minimum period of oxytocin augmentation for active-phase arrest from 2 to 4 hours accomplishes vaginal delivery in the majority of women with no severe adverse maternal or fetal outcomes.¹² Cesarean delivery was not performed until 4 or more hours of sustained uterine contractions above 200 Montevideo units, or a minimum of 6 hours of oxytocin augmentation if the contraction pattern could not be achieved.

Suggestions/Strategies

An assessment of the maternal pelvis and cervix and fetal position, station, and well-being should be performed and documented before augmentation. Administer the lowest dose of oxytocin possible to achieve cervical change and labor progress. This is another excellent opportunity for standardized protocols. If the hospital has a protocol, follow it within reason and document any deviations. Everyone should use the same terminology and avoid ambiguous words, such as “hyperstimulation” and “hypercontractility.”

MACROSOMIA AND SHOULDER DYSTOCIA

Shoulder dystocia is an uncommon and unpredictable event. Common allegations in shoulder dystocia claims include failure to accurately predict the risk of shoulder dystocia; failure to diagnose labor abnormalities; failure to perform cesarean birth; application of forceps or vacuum at high station or continued application without evidence of fetal descent, resulting in shoulder dystocia; failure to appropriately initiate shoulder dystocia corrective measures; and inappropriate use of traction.

Although fetal macrosomia and maternal diabetes increase the risk of shoulder dystocia, a substantial proportion of cases occur among women who do not have diabetes and among infants with birth weights below 4,000 g.¹³ Ultrasound is not an accurate predictor of macrosomia, and many macrosomic infants will deliver without experiencing shoulder dystocia. These uncertainties notwithstanding, planned cesarean delivery to prevent shoulder dystocia may be

FOCUSPOINT
Assessment of the maternal pelvis and cervix, as well as fetal position, station, and well-being, should be documented before augmentation.

considered for suspected fetal macrosomia with estimated fetal weights (EFW) exceeding 5,000 g in women without diabetes and 4,500 g in women with diabetes.¹³ Elective induction does not reduce shoulder dystocia or cesarean delivery for EFW of 4,000 to 4,500 g.

A prior shoulder dystocia places a patient at higher risk for a subsequent one. However, other factors, such as present EFW

compared with prior pregnancy birth weight, gestational age, presence of maternal glucose intolerance, and severity of prior injury, should be taken into account when planning the route of delivery in the subsequent pregnancy.

Suggestions/Strategies

At present, data are inadequate to suggest that the labor curve is a useful predictor of shoulder dystocia. However, in the setting of an EFW above 4,500 g, a prolonged second stage or arrest of descent is an indication for cesarean delivery. If a shoulder dystocia occurs, there is no evidence that any one maneuver is superior to another. Fundal pressure should not be used.

Following resolution of the dystocia, complete a note, summarizing the series of interventions and clinical events and recording important elements. The use of standardized notes has been shown to increase the inclusion of critical elements.¹⁴

When caring for a patient with a prior dystocia, obtain records and review prior events. A discussion should be undertaken with the patient, preferably before the intrapartum period, regarding desire for either elective cesarean or vaginal delivery and associated risks with each. This discussion should be documented in the patient's record.

TRIAL OF LABOR AFTER CESAREAN

The rate of attempted trial of labor after cesarean (TOLAC) delivery has decreased in recent years and is likely due to the current medicolegal climate. Common allegations related to TOLAC include failure to fully inform women of risks and benefits of TOLAC; use of prostaglandin agents for ripening or induction resulting in uterine rupture; use of excessive doses of oxytocin resulting in uterine rupture; failure to treat uterine rupture in a timely manner; and failure to have appropriate personnel and equipment during TOLAC.

An independent panel of the National Institutes of Health convened to review TOLAC delivery. The panel affirmed that TOLAC is a reasonable option for many women with a prior cesarean delivery.¹⁵ Overall rates of successful TOLAC remain relatively consistent at about 75%. In general, the overall benefits of TOLAC are di-

STRATEGIES TO IMPROVE OBSTETRIC PATIENT SAFETY

Fetal Heart Rate Patterns

- Use universal technologic language for fetal heart rate (FHR) patterns
- Encourage all staff to interrupt process if they believe patient is at risk
- Clearly delineate responsibility

Induction of Labor

- Counsel patient
- Monitor and document FHR and contractions
- Standardize protocols
- Have present personnel familiar with uterine stimulants
- Have available team for cesarean delivery, if necessary

Oxytocin for Augmentation

- Document preadministration assessment of maternal pelvis and cervix, as well as fetal position and station
- Administer lowest dose that affects cervical change
- Standardize protocols
- Use same terminology

Macrosomia and Shoulder Dystocia

- An estimated fetal weight above 4,500 g and prolonged second stage of labor may indicate cesarean delivery
- Following resolution of dystocia, document interventions and notable events
- For patient with prior dystocia, review case and counsel patient

Trial of Labor After Cesarean

- Discuss with patient risks and benefits of trial of labor after cesarean (TOLAC) and elective repeat cesarean delivery; document discussion
- Use TOLAC consent forms, if available
- Have available team for cesarean delivery, if necessary

rectly related to having a VBAC, as these women typically have the lowest morbidity and mortality.

The risk for uterine rupture is approximately 7 to 8 per 1,000 women undergoing TOLAC at term. The risk for rupture in women at term who have their labor induced is higher (1,500 per 100,000) than the risk of rupture if labor starts spontaneously (800 per 100,000).

High-quality data regarding perinatal outcomes are limited. Current evidence suggests that the perinatal mortality rate is increased for TOLAC at 130 per 100,000 compared to elective repeat cesarean delivery, at 50 per 100,000.¹⁵ There is considerable evidence that cervical ripening with prostaglandin preparations increases the likelihood of uterine rupture.¹⁶

Suggestions/Strategies

It is important that women understand the spectrum of risks and benefits of TOLAC and elective repeat cesarean delivery. This discussion should be documented in the patient's chart. Many institutions require specific consent forms for TOLAC, and these should be used if available. Use of prostaglandins for cervical ripening or induction of labor at term in most women with a previous cesarean delivery should be discouraged.

If a woman elects a TOLAC, her progress should be assessed regularly and documented. TOLAC should take place at a facility capable of performing an emergency cesarean delivery. If a team is not immediately available at all times, the physician and patient should discuss this potential increase in risk and management options. Referral to a facility where emergency delivery can be executed may be an alternative.¹⁶

CONCLUSION

A number of situations associated with increased risk have been identified, and strategies to reduce the risk of adverse patient outcome and liability claims have been provided (see sidebar). Additional research regarding the effect of implementation of systems-based safety measures on patient safety outcomes is essential. Sound clinical practices delivered via concerted systematic

efforts are likely to further enhance patient outcomes. Finally, there is no substitute for direct communication with the patient and the health care team.

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