WHAT’S NEW IN OBSTETRIC ANESTHESIA FROM 2016?
Joy L. Hawkins, M.D.
University of Colorado SOM
(* I have no conflicts to disclose. *)

GOALS & OBJECTIVES
Discuss how literature from the past year may:
1. Change clinical practice in obstetric anesthesia via new guidelines and policies.
2. Give best practices for analgesic and anesthetic techniques during labor and delivery.
3. Optimize and expedite management of obstetric and anesthetic complications.
4. Alter practices affecting the fetus and newborn.

NEW GUIDELINES AND POLICIES

ACOG: STATEMENT ON ETHICS
Committee Opinion #664: Refusal of Medically Recommended Treatment During Pregnancy
• Pregnant women have the right to refuse treatment.
• It is the obstetrician’s ethical obligation to safeguard her autonomy even if in conflict with the health of the fetus; she is the primary patient.
• The OB has beneficence-based motivation towards the fetus and beneficence-based obligation to the mother.
Obstet Gynecol 2016; 127: e175

ACOG: DIAGNOSTIC IMAGING
ACOG Committee Opinion #656: Guidelines for Diagnostic Imaging During Pregnancy and Lactation
• Endorsed by the American College of Radiology
• Ultrasound and MRI are not associated with risk.
• CT scans or nuclear imaging are at doses much lower than those associated with fetal harm and should not be withheld if deemed necessary.
• Use of gadolinium should be limited, but breast-feeding should not be limited after its use.
Obstet Gynecol 2016; 127: e75

MARIJUANA USE IN PREGNANCY
Medical marijuana is legal in 29 states + D.C. despite limited evidence for efficacy for any uses.
• It is the most widely used illicit drug in pregnancy, often for treatment of nausea.
• Limited data on human prenatal development, but potential to interfere with neurodevelopment.
• Newer & synthetic formulations are more potent.
• Advise pregnant women to avoid using marijuana!
JAMA 2017; 317: 129
MARIJUANA USE IN PREGNANCY
How do obstetric care providers respond during a prenatal visit when a patient tells them they use marijuana?
• 468 audio-recorded OB intake visits; 19% reported MJ use.
• 48% of providers did not respond or offer counseling.
• When counseling was offered, it didn’t include specific information on risks in pregnancy, the need for urine toxicology testing, or the warning that use detected at the time of delivery would involve child protective services.
Obstet Gynecol 2016; 127: 681

REDDUCING CESAREAN RATES
A before & after retrospective study of cesarean delivery rates when the Consensus for the Prevention of the Primary Cesarean Delivery guidelines were used.
• 400 nulliparous women with singleton, vertex fetuses attempting vaginal delivery; 200 before & 200 after.
• Overall cesarean rates ↓ from 27% to 19%.
• Cesarean after induction or augmentation ↓ 36% to 25%.
• Maternal morbidity was reduced (OR 0.66)
Obstet Gynecol 2016; 128: 145

HOME BIRTHS
What are the perinatal risks of a planned out-of-hospital birth? 2012-3 data from Oregon where birth certificates list the planned site of delivery (not just hospital transfers).
• Higher rate of perinatal death compared to planned in-hospital birth: 3.9 per 1000 vs 1.8 per 1000, OR 2.43
• But ↓ odds of assisted vaginal delivery and other OB procedures in planned home births, and…
• ↓ rate of seizures and NICU admission for home births.
N Engl J Med 2015; 373: 2642

ACOG: HOME BIRTHS
ACOG Committee Opinion #669: Planned Home Birth:
• About 35,000 births (0.9%) occur in the home yearly.
• Each woman has the right to make a medically informed decision about her delivery.
• But to achieve a safe, favorable outcome requires: appropriate selection of candidates, including a certified midwife or physician, ready access to consultation if needed, and access to safe and timely transport to nearby hospitals.
• No breech deliveries, prior cesareans or multiple gestations.
Obstet Gynecol 2016; 128: 420

OUTPATIENT BIRTH CENTERS
• U.S. births are expensive without great outcomes.
• Consider a model similar to ambulatory surgery centers that have close affiliation with a hospital.
• Patients who want interventions only when necessary.
• Costs may be only half when no hospital overhead.
• Staffed by a midwife, with an obstetrician and anesthesiologist in the associated hospital. Peds support?
JAMA 2016; 316: 1441

U.S. MATERNAL MORTALITY
Recent adoption of a checkbox on death certificates to indicate the death was pregnancy-related has improved ascertainment.
• Rates ↑ from 18.8 per 100K in 2000 to 23.8 per 100K live births in 2014, a 26% increase!
• In comparison, WHO reports that maternal mortality in 157 of 183 countries has decreased, globally by one-third.
• All states got worse (TX the most) except CA which has the Maternal Quality Collaborative creating bundles for hemorrhage, HTN, embolism
Obstet Gynecol 2016; 128: 447
**MATERNAL SUICIDE**

Review of maternal deaths in Colorado:
- #1 cause of death: 30% resulted from self-harm (overdose or suicide), almost all occurring postpartum.
- Half of the women had been taking medication for depression or other mental health issues, but 48% had discontinued their meds during pregnancy.
- Less than 50% came to a postpartum visit, so sending them for follow-up wouldn’t have helped.

Obstet Gynecol 2016; 128: 1233

**OPIOID DEPENDENCY**

Expert review on opioid dependency and pregnancy:
- Physicians are confused about proper care for these women.
- Many negative interactions: e.g., women discharged from pain mgmt clinics without referral when found to be pregnant, and then expected to find their own treatment somehow.
- Pregnant women were encouraged (in error) to undergo withdrawal, which can lead to fetal hypoxia, adverse effects.
- Efforts to criminalize maternal opioid dependence (e.g. in TN) cause women avoid prenatal care.

Am J Obstet Gynecol 2016; PAP 10/8

**ANALGESIA FOR LABOR**

Does lengthening the 2nd stage of labor (pushing) reduce the incidence of cesarean or ↑ maternal / neonatal complications?
- 78 nulliparous women with epidurals were randomized to ACOG guidelines of 3 hours pushing or a 1 hour extension.
- Cesarean rates: 19.5% in extended group vs 43.2% at 3 hrs.
- No difference in maternal or neonatal morbidity.
- Provocative but underpowered to detect small differences.

Am J Obstet Gynecol 2016; 214: 361

**OBSTETRIC MANAGEMENT**

What is the relationship between delaying pushing (by ≥ 1 hour) after being completely dilated vs. early pushing and outcomes in nulliparous women?
- Secondary analysis of 21,034 women, 18% delayed.
- Delayed group had longer 2nd stage (191 vs 84 minutes), ↑ rates of cesarean (OR 1.86) and ↑ rates of postpartum hemorrhage (OR 1.43) and transfusion (OR 1.5).
- No associated neonatal morbidity.

Obstet Gynecol 2016; 128:1039

**NITROUS OXIDE**

What is the relationship between analgesic effectiveness and patient satisfaction comparing nitrous, CSE, or both?
- Standardized survey on postpartum day 1 for 3 years.
- Only half those using nitrous reported high analgesia scores, while > 90% using neuraxial analgesia had high analgesia scores.
- Women who had poor or intermediate analgesia scores with nitrous still had high satisfaction with anesthesia care.
- Analgesia is not the only contributor to maternal satisfaction.

Anesth Analg 2017; 124: 548
WHAT DOES THE PATIENT WANT?
• Hard to study pain relief in labor → if neonatal outcome is good, then satisfaction is high ± pain scores or analgesia.
• Typical analog pain scales don’t work well; labor pain is dynamic and progressive; i.e. between contractions vs peak.
• As labor progress, a woman’s understanding of “severe” or “worst pain imaginable” often shifts; i.e. pain at 3cm vs 8cm.
• Scales don’t account for intensity of contractions, ability to rest between, duration of labor, her innate coping skills, intrapartum support, and sleep deprivation.

Anesth Analg 2016; 123: 1351 (editorial)

REMIFENTANIL
A retrospective review using respiratory variables during IV-PCA remifentanil for labor analgesia:
• Most women (53%) experienced apnea
• EtCO2 and RR detected the most apneas
• SpO2 detected < 15% of apneas
• None were reliable as early warning surveillance to replace 1:1 provider care.

Anesth Analg 2016: PAP (Weiniger)

REMIFENTANIL PCA
What is the current practice using remifentanil for labor analgesia in the U.S.? A survey was sent to 126 academic centers with residency programs; 84 responded:
• How often used in the past 12 months: 15 centers < 5 times, 4 used it 10-20 times, none > 20 times → uncommon.
• 63% required 1:1 nursing, 85% used O2 saturations
• Reported 9 cases of respiratory depression and 2 cardiac arrests → estimated 4-13% maternal morbidity rate!!
• No consistent method of drug delivery or PCA set-up

Anesth Analg 2016; PAP (Aaronson)

REMIFENTANIL PCA
An evidence-based review of remifentanil labor analgesia:
• Provides modest and short-lasting analgesia
• Compares favorably to other systemic opioids but with fewer neonatal effects; nursing familiarity on L&D?
• Initial analgesia diminishes as labor progresses
• Maternal respiratory depressant → desaturation, hypoventilation, apnea → continuous and careful monitoring is required. 1:1 nursing in attendance?


EPIDURAL versus CSE
A retrospective comparison of failure rates and time of failure between CSE and epidural catheters:
• 2% of CSE versus 4% epidurals required replacement.
• Median time to replacement = 398 min for CSE and 281 min for epidurals; CSE catheters “lasted” 2 hours longer.
• Time to failure was longer than the spinal dose lasted.
• Catheters were equally successful for cesarean deliveries.

Int J Obstet Anesth 2016; 26: 4

EPIDURAL versus CSE
A retrospective look at 1440 CSE and 955 traditional epidural catheters over 6 months:
• Catheter failures: 7% CSE vs. 12% E → hazard ratio 0.58% (fewer CSE catheters failed).
• When catheters failed, there was no difference in failure time course. The spinal dose did not delay recognition.
• Catheters placed with CSE for labor analgesia were less likely to fail when needed for cesarean anesthesia.

Anesthesiology 2016; 125: 516
DURAL PUNCTURE EPIDURAL

Are there advantages to puncturing the dura during epidural catheter placement (DPE), even if you don’t put intrathecal medication in the CSF? Yes!

- Speed of pain relief (median time): CSE (2 min) < DPE (11 min) < CLE (18 min).
- Fewer top-ups were required with DPE (vs. CSE, epidural).
- Fewer side effects after DPE: itching (RR 0.15 vs CSE), hypotension (RR 0.38 vs CSE) and asymmetric block (RR 0.19 vs CLE).

Anesth Analg 2017; 124: 560

PIEB: EPIDURAL MAINTENANCE

Pig model compared spread of dye in the epidural space delivered by bolus or infusion:

- Bolus led to ↑ rostro-caudal spread that is consistent with ↑ efficacy and ↓ dose requirements.
- “It is reasonable to assume that patients receiving epidural analgesia but who are experiencing pain because of narrow bands of analgesia might benefit from an additional bolus dose of local anesthetic rather than an increase in infusion rate alone.”

Br J Anaesth 2016; 116: 277

ANESTHESIA FOR CESAREAN DELIVERY

FAMILY-CENTERED CESAREAN

Wall Street Journal, February 9, 2016

- Place ECG leads on her back, IV in non-dominant hand.
- Delay cord clamping for 60 seconds per Pediatrics.
- Drapes may have a clear window with Velcro drop cover
- An additional nurse for the baby stays near the head of the bed to assess transition and breathing.
- Early skin-to-skin → babies are warmer, calmer, better oxygenated, have more stable blood sugars.

“GENTLE” CESAREAN

The opaque drape can be lowered to a clear plastic drape at delivery if desired.

“GENTLE” CESAREAN

Early skin-to-skin contact is typically encouraged as part of a gentle cesarean.
DOES TILT MATTER?
At term, MRI studies show the IVC is almost completely compressed when supine or 15° tilt → at 30% tilt the IVC fills.
• 100 healthy women having an elective cesarcan at term using spinal anesthesia. Randomly assigned to be supine or with 15° left tilt. BP was kept at baseline with pressors.
• There were no differences in umbilical venous or arterial base deficit or pH at delivery.
• Supine patients needed more phenylephrine and had lower cardiac outputs: 7.2 vs 8.8 L/min but clinically insignificant.
2016 ASA Annual Meeting abstracts # A2076, A2077

GENERAL ANESTHESIA
Study aim: To compare rocuronium 1mg/kg + sugammadex 2-4 mg/kg vs succinylcholine + low-dose R + neostigmine.
• Time to intubation → no difference.
• Vocal cord position, intubation response → no difference.
• No differences in neonatal condition.
• Postpartum myalgias were ↑ with succinylcholine.
• Fewer subjective complaints after rocuronium.
Anesth Analg 2016; 122: 1536

FAILED NEURAXIAL ANESTHESIA
Review: Why do labor epidural catheters sometimes fail when needed for cesarean delivery?
• Failure is associated with ↑ supplemental boluses during labor, urgency of the case, tall stature and obesity.
• Failure ↓: CSE vs epidural catheters, provider experience.
• Recommendations: replace troubled catheters early, avoid a spinal after epidural dosing (↑ high block), communicate with OB to avoid unnecessary urgency.
Anesth Analg 2016; 123: 1174

OXYTOCIN
Oxytocin ED95 ↑ 10-fold after receptor exposure. How long is recovery time for myometrial responsiveness after oxytocin-induced desensitization?
• In vitro model of human myometrium s/p exposure to oxytocin. Varied “rest” periods of 30, 60, 90 minutes before testing responsiveness to oxytocin.
• Myometrial contractility was still impaired at 90 minutes with unclear improvement over time.
Anesth Analg 2016; 122: 1508

INTRATHECAL MORPHINE
Comparison of low-dose (50-100 µg) versus higher dose (> 100-250 µg) IT morphine for cesarean:
• Meta-analysis of 11 studies with 488 patients
• Time to first analgesic request was 4.49 hours longer in the higher dose group.
• Pain scores at 12 hours and morphine consumption at 24 hours were no different.
• There was less N/V and pruritus in low-dose group.
Anesth Analg 2016; 123: 154

DIFFICULT PAIN CONTROL
For patients predicted to have severe pain after cesarean, what is an effective multi-modal technique?
• 74 parturients pre-screened to have > 80%ile pain scores.
• All received scheduled PO ibuprofen and IV PCA morphine; control group → 150 µg IT morphine; treatment group → 300 µg IT morphine + 1 gm acetaminophen q 6 hours
• Treatment group had ↓ pain scores at 24 hours
Anesth Analg 2016; 122: 1114
PRACTICE GUIDELINES

Updated ASA Practice Guidelines for the Prevention, Detection, and Management of Respiratory Depression Associated with Neuraxial Opioid Administration

- Collaboration between ASA and ASRA
- “Single-injection neuraxial opioids may be safely used in place of parenteral opioids without altering the risk of respiratory depression or hypoxemia.”
- Morphine: monitor at least once per hour for the first 12 hours, then at least every 2 hours for the next 12 hours.

Anesthesiology 2016; 124: 535

OPIOID DEPENDENCE

Recommendations for pregnant patients on opioid maintenance:

- Antepartum: anesthesia consultation to establish rapport, get an accurate ETOH and drug history, discuss analgesia options.
- Intrapartum: early neuraxial analgesia with opioids, continue their baseline oral opioid maintenance – methadone, buprenorphine (+ naloxone = Suboxone)
- Postpartum: neuraxial morphine, continuous epidural infusion, acetaminophen, ketorolac or ibuprofen, wound infiltration or Pain-Buster continuous wound catheter, TAP blocks.

SOAP Newsletter, Summer 2016, p.11

ANESTHETIC COMPLICATIONS

HOSPITAL FACTORS

What are the hospital-level characteristics associated with anesthesia-related adverse events in cesareans?

- New York State Inpatient Database 2009-2011
- ↑ if the hospital annual cesarean volume < 200 (OR 2.3)
- Of the total of 141 hospitals, 6% were rated good, 74% average and 21% as bad-performing (OR 5.9)
- Bringing bad hospitals to the level of average would prevent 30% of the anesthesia-related adverse events.

Anesth Analg 2016; 122: 1947

CPR IN PREGNANCY

NIS database 2002-11 was used to compare mortality after cardiac arrest in pregnant and nonpregnant women.

- CPR rates have ↑ in pregnant women by 6.4% / year compared to only 3.8% annually for nonpregnant.
- In-hospital mortality rates after CPR were lower in pregnant women (49%) than nonpregnant (71%) → odds ratio = 0.46. Why??

Obstet Gynecol 2016; 128: 880

AIRWAY MANAGEMENT

What is the best approach to emergency cesarean in a patient with an anticipated difficult airway?

- Decision analysis based on a systematic review of the literature, because an RCT is not practical.
- RSI with video-laryngoscopy = 100s vs awake fiberoptic intubation = 9 min vs spinal anesthesia = 6 minutes.
- Risk of ultimate failed airway control = 21 per 100,000.
- Mothers may accept such a low risk to prevent fetal harm.

Anaesthesia 2017; 72: 156
ASPIRATION RISK
Clinical Opinion: Since 1846 and Mendelson’s report, restriction of oral intake in labor has become the norm.
• Are his findings still relevant with modern practice?
• Neuraxial analgesia is now used for 95% of cesareans.
• Aspiration may be unrelated to oral intake in labor.
• Given the lack of data, qualitative measures such as patient satisfaction should take priority → we should risk-stratify and limit oral intake only if high risk.
Am J Obstet Gynecol 2016; 214: 592

NEURAXIAL COMPLICATIONS
Incidence and risk factors for in-hospital neuraxial hematoma and abscess from the Nationwide Inpatient Sample (NIS) 1998-2010:
• 3.7 million epidural procedures in total.
• Incidence of hematoma: 6 per million procedures in OB compared to 185 per million in non-obstetric patients.
• Incidence of abscess: 0 in obstetric patients versus 72 per million non-obstetric procedures.
Acta Anaesthesiologica Scand 2016; 60: 810

EPIDURAL HEMATOMA
More women will be receiving anti-coagulation with the new consensus bundle on venous thrombo-embolism prophylaxis. What labs? Does LMWH cause detectable changes in TEG?
• In vitro study using blood from term parturients with dalteparin added to produce standardized anti-Xa activity.
• Significant differences were detected in r time, k time alpha angle and maximal amplitude
• Highest sensitivities: r time = 97.5 and k time = 84

NEURAXIAL INFECTION
What is best practice for hand-sanitizing prior to neuraxial anesthesia?
• Single hospital, randomized providers into 5 methods of hand sanitizing, then arms tested for colonization.
• There was significantly less colonization using alcohol gel versus any variation using soap.
• Odds ratio of bacterial growth was 13.82 for soap alone and drying with a paper towel.
Int J Obstet Anesth 2017; 29: 39

NOVEL PDPH TREATMENT
• Sphenopalatine ganglion block has been used for migraines, especially in pain clinics.
• Place 2 6-inch cotton-tipped applicators soaked in 4% lidocaine or 0.5% bupivacaine in each nasal passage superior to the middle turbinate.
• Retrospective review: better success than EBP
• Case reports of success after EBP was unsuccessful or refused by the patient.
AAPM 2016; Abstract # 145 ASRA 2016; Abstract #2905

INTRATHECAL CATHETERS
Retrospective review of complications from 761 intrathecal 19 gauge macro-catheters over 12 years.
• No serious complications: meningitis, epidural or spinal abscess, hematoma, arachnoiditis, cauda equina syndrome.
• Failure rates were 3% when placed intentionally and 6% when placed after accidental dural puncture.
• PDPH = 41% and epidural blood patch = 31%.
Int J Obstet Gynecol 2016; 25: 30
FAILED NEURAXIAL FOR C/S

This is a must-read for everyone providing anesthesia for pregnant women…………….a patient describes her elective cesarean with a failed neuraxial block that caused her pain and required conversion to general anesthesia. Her description of the poor communication between the anesthesiologist before, during and after the case is eye-opening. She has suggestions which would have made her experience less traumatic. Co-written with an obstetric anesthesiologist.

Int J Obstet Anesth 2016; 28: 70

FETAL MONITORING IN SURGERY

Thoracoscopic lung resection and pleurodesis at 29 weeks gestation. Several times intraop the hemodynamic and respiratory consequences led to severe fetal decelerations or bradycardia. Successfully treated with position changes, phenylephrine, terbutaline, etc.

• Continuous monitoring was helpful in this case
• Attempt in utero resuscitation vs. delivery

Obstet Gynecol 2016; 127: 136

FETAL MONITORING IN SURGERY

Case report: G1 at 20 weeks had unrepaired aortic coarctation and mitral stenosis with deteriorating status during pregnancy. She underwent endovascular aortic repair under general anesthesia with continuous fetal monitoring. At the end of the case, maternal hypoxia developed → undetectable fetal heart tones. Intra-uterine resuscitation was done using ephedrine, NTG, and terbutaline and the fetus recovered. The mother developed hypertension and pulmonary edema requiring ICU treatment but subsequently did well. A female infant was delivered at 40 weeks and had a normal neonatal course.

A&A Case Reports 2016; 6: 150

FDA WARNING 12/14/16

“The repeated or lengthy (> 3 hours) use of general anesthetic and sedation drugs during surgeries or procedures in children younger than 3 years or in pregnant women in the third trimester may affect the child’s developing brain….As a result, the FDA is requiring black-box warnings to be added to the labels of [all] general anesthetic and sedative drugs. No specific anesthetic or sedation drug has been shown to be safer than any other.”

Medscape.com 12/14/16

FDA WARNING - RESPONSE

• Based on four recent reassuring studies, the imminent reporting of data regarding multiple exposures in young children, the lack of any data regarding adverse consequences of human fetal exposure to anesthesia, and the lack of any troublesome new data, the FDA warning and its timing took clinicians and investigators in the field by surprise.

• The warning will raise concerns and questions among practitioners, pregnant women, and parents of young children—questions for which there are currently no answers.

N Engl J Med 2017; online 2/8

FDA WARNING - ACOG

• ACOG has significant concerns regarding the FDA’s warning….ACOG believes the clinical significance of these findings are unknown and could inappropriately dissuade clinicians from providing women with necessary care during pregnancy.

• ...the findings that pertain to growing fetuses were based on studies in pregnant animals - not pregnant humans.

• No woman should be denied a medically indicated procedure which may involve the use of these agents.

ACOG.org 12/22/2016
OBSTETRIC & MEDICAL COMPLICATIONS

MULTI-DISCIPLINARY M&M
Review all severe maternal morbidity using a multi-disciplinary team. Metrics = prolonged LOS, ICU admission, transfusion ≥ 4 units or re-admission in < 30 days.
• True severe morbidity was present in 0.9% of cases.
• Opportunity for improvements in care found in 44%.
• Most common causes: hemorrhage 71%, PEC 11%.
• Provider factors existed in 79%, patient 29%, system 14%.
   Am J Obset Gynecol 2016; 215: 509

MTP FOR OBSTETRICS
• Avoid large volumes of crystalloids.
• Don’t wait for labs to give blood products.
• Transfuse RBC: FFP: platelets as 1:1:1 ratio.
• Add cryoprecipitate to keep fibrinogen > 200.
• Consider early use of anti-fibrinolytics (TXA).
• Use rFVIIa with caution → no survival benefit, high cost, postpartum risk of arterial thrombosis.
• Prothrombin complex and fibrinogen complexes are promising.

JW WITH ACCRETA
Case: G2P1 with one prior cesarean presented at 34 weeks with diagnosed placenta previa + percreta. JW faith limited therapy as documented by a detailed consent.
• Preop: erythropoieten and IV iron, DOS → normo-volemic hemodilution of 900 ml in a continuous circuit.
• Intraop: TXA immediately after delivery, placenta was left in situ, and uterine arteries were embolized by IR.
• Postop: discharged → TAH after 26 days with cell-saver.
   A&A Case Reports 2016; 6: 111

HYBRID O.R. FOR PERCRETA
Case: G4P3 S/P 3 prior cesarean deliveries. Placenta percreta with bladder invasion was diagnosed at 28 weeks. 4th cesarean planned at 34 weeks in a hybrid O.R. Under general anesthesia, lines and femoral sheaths placed → cesarean delivery performed → uterine artery embolization was done → placenta left in situ and incision closed with total EBL 1600 ml. Discharged day 16 and followed in the outpatient clinic with twice weekly US. Uneventful hysterectomy 25 days later.
   A&A Case Reports 2016; 7: 135

MISOPROSTOL: SIDE EFFECTS
Case: Multiparous patient had a precipitous delivery before IV access was obtained, and received 800 mcg rectal misoprostol (Cytotec®). 30 minutes later she had chills, temp to 106.7 degrees, tachycardia to 170s and encephalopathy → agitated and disoriented. Taken to ICU with presumed sepsis and put in cooling protocol. Normalized in 4 hours, all testing negative.
• Probably hypothalamic.
   Obstet Gynecol 2016; 127: 1067
AMNIOTIC FLUID EMBOLISM

AFE is often over-diagnosed. SMFM and the AFE Foundation propose strict criteria for research on AFE:

• Sudden onset cardio-respiratory arrest or hypotension + respiratory compromise (cyanosis, oxygen sat < 90%).
• Overt DIC prior to EBL-related coagulopathy.
• Clinical onset during labor or within 30 minutes of delivering the placenta.
• No fever ≥ 38°C during labor to indicate sepsis.

Am J Obstet Gynecol 2016; October: 408

PREECLAMPSIA PREVENTION

A small pilot study of women at high risk of preeclampsia randomized them to placebo or pravastatin 10 mg when they were 12-16 weeks gestation.

• There were no identifiable safety risks to mother or baby.
• 25% PEC in placebo group, none in the pravastatin group
• Renal clearance significantly ↑ in pregnancy vs postpartum.
• Merits further study based on risk-benefit analysis.

Am J Obstet Gynecol 2016; 214: 720

PREECLAMPSIA DIAGNOSIS

Women presenting with HTN after 20 weeks gestation are often admitted and monitored to rule out preeclampsia, leading to ↑ costs. Could a blood test help clinicians decide who could be followed safely as an outpatient?

• 550 women with suspected preeclampsia between 24 and 37 weeks had their sFlt-1 and Placental GF ratio measured.
• If the ratio was < 38 there was a 99.3% chance she would not progress to preeclampsia or HELLP within the next week.

N Engl J Med 2016; 374: 13 and 83 (editorial)

SILDENAFIL FOR PREECLAMPSIA

RCT of preeclamptic women at 24-33 weeks gestation who received 50 mg sildenafil (Viagra®) q 8 hours or placebo.

• Pregnancies lasted 4 days longer when taking sildenafil.
• Maternal blood pressure was lower, less anti-hypertensive therapy was initiated and lower doses were required.
• Umbilical artery Doppler studies improved.
• No difference in adverse effects or perinatal morbidity.

Obstet Gynecol 2016; 128: 253

IMPLICATIONS AFTER PREECLAMPSIA

60,000 women who delivered 1939-2012 with hypertensive complications of pregnancy (preeclampsia, eclampsia, gestational HTN) were compared to a cohort without HTN.

• ↑ all-cause mortality (HR 1.65)
• ↑ Alzheimer’s disease (HR 3.44)
• ↑ Diabetes (HR 2.80)
• ↑ Ischemic heart disease (HR 2.23)
• ↑ Stroke (HR 1.88)

Obstet Gynecol 2016; 128: 238
OBESITY & OUTCOMES
Is obesity associated with adverse pregnancy outcomes if otherwise healthy? Yes.
• N=112K singleton deliveries stratified by BMI.
• Risk of gestational diabetes, HTN, cesarean delivery and need for induction increased in a dose-response fashion as BMI increased.
• Neonatal risks also ↑ in a dose-response fashion for preterm birth < 32 weeks, LGA, TTN, sepsis and ICU admission.
Obstet Gynecol 2016; 128: 104

BREECH PRESENTATION
ACOG Practice Bulletin: External Cephalic Version (ECV):
• Use of ECV could help reduce cesarean rates.
• “Because the risk of an adverse event occurring as a result of ECV is small and the cesarean delivery rate is significantly lower among women who have undergone successful ECV, all women who are near term with breech presentations should be offered an ECV attempt if there are no contraindications.”
Obstet Gynecol 2016; 127: e54

BREECH PRESENTATION
Is neuraxial anesthesia effective as an intervention to improve the success rate of ECV?
• Meta analysis of 9 trials and 934 women.
• Compared to control, neuraxial anesthesia ↑ success rates, ↑ cephalic presentation in labor, ↑ vaginal delivery, ↓ cesarean rates, and ↓ maternal discomfort.
• No difference in emergency cesarean, transient bradycardia, non-reassuring fetal testing, or abruption.
Am J Obstet Gynecol 2016; 128: e131

THE FETUS AND NEONATE
ONDANSETRON
Does ondansetron use ↑ risk of birth defects? No.
• Systematic review of 8 studies of first trimester use
• No ↑ risk of malformations overall (OR 1.12)
• Slight ↑ risk of cardiac septal defects in 2 studies (OR 2.0 and 1.6) not replicated in other studies.
• Could hyper-emesis itself be the cause?
• Ondansetron should be used when symptoms have not been controlled by other methods.
Obstet Gynecol 2016; 127: 873, 878

FETUS: INTRAPARTUM MGT.
Is induction of labor associated with autism spectrum disorders in the child?
• Swedish birth registry1992-2005 compared relatives
• 1.6% of births (22,077 offspring) had a diagnosis of ASD at ages 8-21 years.
• When siblings were compared to control for environmental and genetic factors, labor induction was not associated with ASD.
JAMA Pediatr 2016; online 7/25
PRETERM LABOR: LATE STEROIDS?

Does betamethasone decrease risk of neonatal morbidities for infants born at 34-36 weeks gestation?

- Placebo vs. steroids for patients at risk of delivery.
- Fewer deliveries in treated women: 11.6 vs 14.4%
- Steroid group had ↓ complications: neonatal respiratory complications, TTN, surfactant use, BPD.
- More neonatal hypoglycemia after steroids.


PRETERM LABOR: EARLY STEROIDS?

- Steroids administered to women at 22-23 weeks gestation at high risk for preterm birth ↓ neonatal mortality by 50%. No difference in morbidity.
- ACOG Care Consensus: Periviable Birth — reviews current newborn outcomes, recommendations regarding interventions, and an outline for family support & guidance.

Obstet Gynecol 2016; 127: 715

NEONATAL ABSTINENCE SYNDROME

- Definition: postnatal opioid withdrawal syndrome
- Increased incidence and higher health-care costs; average LOS 17 days due to CNS, autonomic and GI symptoms.
- Screening tools and assessment tools are available.
- Management: gentle soothing environment with minimal stimulation, encourage breast-feeding and rooming-in, relief of symptoms with oral morphine or methadone or SL buprenorphine – using standard protocols.


AND WE’LL SEE WHAT’S NEW IN 2017!

THE END