January 2016 Literature Alert

1.
Am J Obstet Gynecol. 2015 Dec;213(6):844.e1-6. doi: 10.1016/j.ajog.2015.08.014. Epub 2015 Aug 12.
Does 17-alpha hydroxyprogesterone caproate prevent recurrent preterm birth in obese women?
Heyborne KD, Allshouse AA, Carey JC.

Abstract
OBJECTIVE:
We sought to determine if maternal weight or body mass index (BMI) modifies the effectiveness of 17-alpha hydroxyprogesterone caproate (17OHP-C).
STUDY DESIGN:
We performed a secondary analysis of the Maternal-Fetal Medicine Units Network Trial for the Prevention of Recurrent Preterm Delivery by 17-Alpha Hydroxyprogesterone Caproate. Binomial regression models were estimated to determine the relative risk (RR) of preterm birth (PTB) in women randomized to 17OHP-C vs placebo according to BMI category and maternal weight. Adjusted models considered inclusion of potential confounders.
RESULTS:
In all, 443 women with complete data were included. 17OHP-C is effective in preventing PTB <37 weeks only in women with prepregnancy BMI <30 kg/m(2) (RR, 0.54; 95% confidence interval, 0.43-0.68). Above this BMI threshold there is a nonsignificant trend toward an increased risk of PTB (RR, 1.55; 95% confidence interval, 0.83-2.89) with 17OHP-C treatment. When analyzing by maternal weight, a similar threshold is observed at 165 lb, above which 17OHP-C is no longer effective.
CONCLUSION:
The effectiveness of 17OHP-C is modified by maternal weight and BMI, and treatment does not appear to reduce the rate of PTB in women who are obese or have a weight >165 lb. This finding may be due to subtherapeutic serum levels in women with increased BMI or weight. Studies of adjusted-dose 17OHP-C in women who are obese or who weigh >165 lb are warranted, and current recommendations regarding the uniform use of 17OHP-C regardless of maternal BMI and weight may deserve reassessment.

KEYWORDS:
17-alpha hydroxyprogesterone caproate; body mass index; obesity; prematurity; preterm birth; progesterone
PMID: 26275354 [PubMed - in process]

2.
Am J Obstet Gynecol. 2015 Dec;213(6):779-88. doi: 10.1016/j.ajog.2015.05.034. Epub 2015 May 21.
Cerebral palsy: causes, pathways, and the role of genetic variants.
MacLennan AH, Thompson SC, Gecz J.

Abstract

Cerebral palsy (CP) is heterogeneous with different clinical types, comorbidities, brain imaging patterns, causes, and now also heterogeneous underlying genetic variants. Few are solely due to severe hypoxia or ischemia at birth. This common myth has held back research in causation. The cost of litigation has devastating effects on maternity services with unnecessarily high cesarean delivery rates and subsequent maternal morbidity and mortality. CP rates have remained the same for 50 years despite a 6-fold increase in cesarean birth. Epidemiological studies have shown that the origins of most CP are prior to labor. Increased risk is associated with preterm delivery, congenital malformations, intrauterine infection, fetal growth restriction, multiple pregnancy, and placental abnormalities. Hypoxia at birth may be primary or secondary to preexisting pathology and international criteria help to separate the few cases of CP due to acute intrapartum hypoxia. Until recently, 1-2% of CP (mostly familial) had been linked to causative mutations. Recent genetic studies of sporadic CP cases using new-generation exome sequencing show that 14% of cases have likely causative single-gene mutations and up to 31% have clinically relevant copy number variations. The genetic variants are heterogeneous and require function investigations to prove causation. Whole genome sequencing, fine scale copy number variant investigations, and gene expression studies may extend the percentage of cases with a genetic pathway. Clinical risk factors could act as triggers for CP where there is genetic susceptibility. These new findings should refocus research about the causes of these complex and varied neurodevelopmental disorders.

KEYWORDS:
DNA variants; causes; cerebral palsy; epidemiological risk factors; genetic variants; genomics; heterogeneity; whole exome sequencing
PMID: 26003063 [PubMed - in process]

3.
N Engl J Med. 2016 Jan 7;374(1):13-22. doi: 10.1056/NEJMoa1414838.
Predictive Value of the sFlt-1:PlGF Ratio in Women with Suspected Preeclampsia.
Zeisler H, Llurba E, Chantraine F, Vatish M, Staff AC, Sennström M, Olovsson M, Brennecke SP, Stepan H, Allegranza D, Dilba P, Schoedl M, Hund M, Verlohren S.

Abstract
BACKGROUND:
The ratio of soluble fms-like tyrosine kinase 1 (sFlt-1) to placental growth factor (PlGF) is elevated in pregnant women before the clinical onset of preeclampsia, but its predictive value in women with suspected preeclampsia is unclear.
METHODS:
We performed a prospective, multicenter, observational study to derive and validate a ratio of serum sFlt-1 to PlGF that would be predictive of the absence or presence of preeclampsia in the short term in women with singleton pregnancies in whom preeclampsia was suspected (24 weeks 0 days to 36 weeks 6 days of gestation). Primary objectives were to assess whether low sFlt-1:PlGF ratios (at or below a derived cutoff) predict the absence of preeclampsia within 1 week after the first visit and whether high ratios (above the cutoff) predict the presence of preeclampsia within 4 weeks.
RESULTS:
In the development cohort (500 women), we identified an sFlt-1:PlGF ratio cutoff of 38 as having important predictive value. In a subsequent validation study among an additional 550 women, an sFlt-1:PlGF ratio of 38 or lower had a negative predictive value (i.e., no preeclampsia in the subsequent week) of 99.3% (95% confidence interval [CI], 97.9 to 99.9), with 80.0% sensitivity (95% CI, 51.9 to 95.7) and 78.3% specificity (95% CI, 74.6 to 81.7). The positive predictive value of an sFlt-1:PlGF ratio above 38 for a diagnosis of preeclampsia within 4 weeks was 36.7% (95% CI, 28.4 to 45.7), with 66.2% sensitivity

(95% CI, 54.0 to 77.0) and 83.1% specificity (95% CI, 79.4 to 86.3).
CONCLUSIONS:
An sFlt-1:PlGF ratio of 38 or lower can be used to predict the short-term absence of preeclampsia in women in whom the syndrome is suspected clinically. (Funded by Roche Diagnostics.).
Comment in
Improving the Prediction of Preeclampsia. [N Engl J Med. 2016]
PMID: 26735990 [PubMed - in process]

4.
N Engl J Med. 2015 Dec 31;373(27):2642-53. doi: 10.1056/NEJMsa1501738.
Planned Out-of-Hospital Birth and Birth Outcomes.
Snowden JM, Tilden EL, Snyder J, Quigley B, Caughey AB, Cheng YW.

Abstract
BACKGROUND:
The frequency of planned out-of-hospital birth in the United States has increased in recent years. The value of studies assessing the perinatal risks of planned out-of-hospital birth versus hospital birth has been limited by cases in which transfer to a hospital is required and a birth that was initially planned as an out-of-hospital birth is misclassified as a hospital birth.
METHODS:
We performed a population-based, retrospective cohort study of all births that occurred in Oregon during 2012 and 2013 using data from newly revised Oregon birth certificates that allowed for the disaggregation of hospital births into the categories of planned in-hospital births and planned out-of-hospital births that took place in the hospital after a woman's intrapartum transfer to the hospital. We assessed perinatal morbidity and mortality, maternal morbidity, and obstetrical procedures according to the planned birth setting (out of hospital vs. hospital).
RESULTS:
Planned out-of-hospital birth was associated with a higher rate of perinatal death than was planned in-hospital birth (3.9 vs. 1.8 deaths per 1000 deliveries, P=0.003; odds ratio after adjustment for maternal characteristics and medical conditions, 2.43; 95% confidence interval [CI], 1.37 to 4.30; adjusted risk difference, 1.52 deaths per 1000 births; 95% CI, 0.51 to 2.54). The odds for neonatal seizure were higher and the odds for admission to a neonatal intensive care unit lower with planned out-of-hospital births than with planned in-hospital birth. Planned out-of-hospital birth was also strongly associated with unassisted vaginal delivery (93.8%, vs. 71.9% with planned in-hospital births; P<0.001) and with decreased odds for obstetrical procedures.
CONCLUSIONS:
Perinatal mortality was higher with planned out-of-hospital birth than with planned in-hospital birth, but the absolute risk of death was low in both settings. (Funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development.).
Comment in
Choosing Benefits while Balancing Risks. [N Engl J Med. 2015]
PMID: 26716916 [PubMed - indexed for MEDLINE]

5.
Ann Intern Med. 2015 Dec 15;163(12):889-98. doi: 10.7326/M15-0807. Epub 2015 Nov 24.
Lactation and Progression to Type 2 Diabetes Mellitus After Gestational Diabetes Mellitus: A Prospective Cohort Study.
Gunderson EP, Hurston SR, Ning X, Lo JC, Crites Y, Walton D, Dewey KG, Azevedo RA, Young S, Fox G,

Elmasian CC, Salvador N, Lum M, Sternfeld B, Quesenberry CP Jr; Study of Women, Infant Feeding and Type 2 Diabetes After GDM Pregnancy Investigators.

Abstract
BACKGROUND:
Lactation improves glucose metabolism, but its role in preventing type 2 diabetes mellitus (DM) after gestational diabetes mellitus (GDM) remains uncertain.
OBJECTIVE:
To evaluate lactation and the 2-year incidence of DM after GDM pregnancy.
DESIGN:
Prospective, observational cohort of women with recent GDM. (ClinicalTrials.gov: NCT01967030).
SETTING:
Integrated health care system.
PARTICIPANTS:
1035 women diagnosed with GDM who delivered singletons at 35 weeks' gestation or later and enrolled in the Study of Women, Infant Feeding and Type 2 Diabetes After GDM Pregnancy from 2008 to 2011.
MEASUREMENTS:
Three in-person research examinations from 6 to 9 weeks after delivery (baseline) and annual follow-up for 2 years that included 2-hour, 75-g oral glucose tolerance testing; anthropometry; and interviews. Multivariable Weibull regression models evaluated independent associations of lactation measures with incident DM adjusted for potential confounders.
RESULTS:
Of 1010 women without diabetes at baseline, 959 (95%) were evaluated up to 2 years later; 113 (11.8%) developed incident DM. There were graded inverse associations for lactation intensity at baseline with incident DM and adjusted hazard ratios of 0.64, 0.54, and 0.46 for mostly formula or mixed/inconsistent, mostly lactation, and exclusive lactation versus exclusive formula feeding, respectively (P trend = 0.016). Time-dependent lactation duration showed graded inverse associations with incident DM and adjusted hazard ratios of 0.55, 0.50, and 0.43 for greater than 2 to 5 months, greater than 5 to 10 months, and greater than 10 months, respectively, versus 0 to 2 months (P trend = 0.007). Weight change slightly attenuated hazard ratios.
LIMITATION:
Randomized design is not feasible or desirable for clinical studies of lactation.
CONCLUSION:
Higher lactation intensity and longer duration were independently associated with lower 2-year incidences of DM after GDM pregnancy. Lactation may prevent DM after GDM delivery.
PRIMARY FUNDING SOURCE:
National Institute of Child Health and Human Development.
PMID: 26595611 [PubMed - in process]

6.
J Neonatal Perinatal Med. 2015 Oct 24;8(3):227-32. doi: 10.3233/NPM-15814072.
Use of melatonin as an adjuvant therapy in neonatal sepsis.
El Frargy M, El-Sharkawy HM, Attia GF.

Abstract
OBJECTIVE:
The objective of this study is to evaluate the therapeutic efficacy of melatonin as an adjuvant therapy in treating neonatal sepsis.

PATIENTS AND METHODS:
A prospective clinical trial study was conducted on 50 infants with neonatal sepsis diagnosed on the basis of both clinical and laboratory criteria. Enrolled infants were divided into two groups. Intervention group (n = 25) received melatonin and antibiotics, while the control group (n = 25) was treated with antibiotics only. Melatonin was administered as a single oral dose of 20 mg and antibiotics were administered according to a standard protocol. Both groups were compared using a predefined sepsis score utilizing both clinical and laboratory parameters.
RESULTS:
There was no significant difference in sepsis score between both groups before starting melatonin (p-value = 0.99), while there was significant difference in sepsis score between groups after 24 hours, 48 hours and 72 hours of starting melatonin with (p-value = 0.008, 0.006 and 0.002, respectively). There was significant improvement sepsis score in both groups with more improvement of sepsis score in the intervention group.
CONCLUSION:
Administration of melatonin as an adjuvant therapy in the treatment of neonatal sepsis is associated with improvement of clinical and laboratory outcomes.
KEYWORDS:
Neonates; bacteremia; melatonin; premature
PMID: 26485549 [PubMed - in process]

7.
J Perinatol. 2015 Dec;35(12):991-5. doi: 10.1038/jp.2015.120. Epub 2015 Sep 24.
Association between marijuana use and adverse obstetrical and neonatal outcomes.
Warshak CR, Regan J, Moore B, Magner K, Kritzer S, Van Hook J.

Abstract
OBJECTIVE:
To evaluate associations between marijuana exposure and adverse outcomes excluding women with polysubstance abuse and stratifying for concurrent maternal tobacco use.
STUDY DESIGN:
We performed a retrospective cohort study evaluating various obstetrical and neonatal outcomes including: preterm delivery, pre-eclampsia, gestational diabetes, cesarean delivery, fetal growth restriction, a composite which included stillbirth or neonatal intensive care unit admission, and perinatal mortality. We stratified study groups according to the maternal tobacco use and performed a logistic regression analysis.
RESULTS:
We included 6468 women, 6107 nonusers and 361 marijuana users. After adjustment for maternal age, race, parity, body mass index and no prenatal care, we found higher rates of small for gestational age (aOR 1.30 (95% CI 1.03 to 1.62)) and neonatal intensive care unit admission (aOR 1.54 (1.14 to 2.07)) in women who were not tobacco users. Other obstetrical outcomes including preterm delivery and fetal anomalies were not increased with maternal marijuana use.
CONCLUSION:
Maternal marijuana use does not increase the risk of adverse obstetrical outcomes or fetal anomalies, but does increase the risk for small for gestational age and neonatal intensive care unit admission.
PMID: 26401751 [PubMed - in process]

8.
BJOG. 2015 Dec;122(13):1798-807. doi: 10.1111/1471-0528.13113. Epub 2014 Oct 15.

Evidence of an immunosuppressive effect of progesterone upon in vitro secretion of proinflammatory and prodegradative factors in a model of choriodecidual infection.
Pineda-Torres M, Flores-Espinosa P, Espejel-Nunez A, Estrada-Gutierrez G, Flores-Pliego A, Maida-Claros R, Zaga-Clavellina V.

Abstract
OBJECTIVE:
To evaluate whether progesterone (P4) is able to modulate the secretion of tumour necrosis factor α (TNF-α), interleukin-1β (IL-1β), IL-6, IL-8, IL-10 and matrix metalloproteinase-9 (MMP-9) after choriodecidual stimulation with lipopolysaccharide (LPS).
DESIGN:
Chorioamnionitis-elicited preterm delivery is associated with an uncontrolled secretion of proinflammatory cytokines that may induce MMPs, which modify the fine immunological and structural equilibrium at the fetal-maternal interface.
SETTING:
Instituto Nacional de Perinatología 'Isidro Espinosa de los Reyes', Mexico City.
SAMPLE:
Twelve human fetal membranes at term from healthy patients were placed in a two-chamber culture system.
METHODS:
Choriodecidual and amniotic regions were preincubated with 1.0, 0.1, or 0.01 μmol/l P4 for 24 hours; after which the choriodecidual region was costimulated with 1000 ng/ml of LPS for 24 hours.
MAIN OUTCOME MEASURES:
Descriptive statistics were obtained for each variable. Data distribution was tested for normality using Kolmogorov-Smirnoff and Shapiro-Wilk tests. When distribution was normal, Student's t test was used to analyse for differences among groups. Mann-Whitney's U test was used when data were not normally distributed.
RESULTS:
Pretreatment with 1.0 μmol/l P4 significantly blunted the secretion of TNF-α, IL-1β, IL-6, IL-8 and IL-10. MMP-9 was inhibited with 0.1 μmol/l P4. Mifepristone (RU486) blocked the immunosuppressive effect of P4, suggesting a P4 effect mediated by its receptor.
CONCLUSION:
These results offer evidence to support the concept that P4 can protect the fetal-placental unit through a compensatory mechanism that partially limits the secretion of proinflammatory and prodegradative modulators.

KEYWORDS:
Human fetal membranes; inflammation; intrauterine infection; lipopolysaccharide metalloproteinases; progesterone
PMID: 25315965 [PubMed - in process]

9.
Obstet Gynecol. 2015 Dec;126(6):1223-30. doi: 10.1097/AOG.0000000000001131.
Preterm Breech Presentation: A Comparison of Intended Vaginal and Intended Cesarean Delivery.
Bergenhenegouwen L, Vlemmix F, Ensing S, Schaaf J, van der Post J, Abu-Hanna A, Ravelli AC, Mol BW, Kok M.

Abstract

OBJECTIVE:
To study the association of the intended mode of delivery and perinatal morbidity and mortality among breech fetuses who are delivered preterm.
METHODS:
We conducted a nationwide cohort study of women with a singleton pregnancy in breech presentation who delivered preterm (26 0/7-36 6/7 weeks of gestation) in the years 2000-2011. We compared perinatal outcomes according to the intended and actual mode of delivery using multivariate logistic regression analysis. We performed subgroup analyses of gestational age and parity.
RESULTS:
We studied 8,356 women with a preterm singleton breech delivery. Intended cesarean delivery (n=1,935) was not associated with a significant reduction in perinatal mortality compared with intended vaginal delivery (n=6,421) (1.3% compared with 1.5%; adjusted odds ratio [OR] 0.97, 95% confidence interval [CI] 0.60-1.57). However, the composite of perinatal mortality and morbidity was significantly reduced in the intended cesarean delivery group (8.7% compared with 10.4%; adjusted OR 0.77, 95% CI 0.63-0.93). In the subgroup of women delivering at 28-32 weeks of gestation, intended cesarean delivery was associated with a 1.7% risk of perinatal mortality compared with 4.1% with intended vaginal delivery (adjusted OR 0.27, 95% CI 0.10-0.77) and significantly reduced composite mortality and severe morbidity, 5.9% compared with 10.1% (adjusted OR 0.37, 95% CI 0.20-0.68).
CONCLUSION:
In women delivering a preterm breech fetus, cesarean delivery is associated with reduced perinatal mortality and morbidity.
LEVEL OF EVIDENCE: II.
PMID: 26551172 [PubMed - in process]

10.
Pediatrics. 2015 Dec;136(6):e1576-86. doi: 10.1542/peds.2015-2372. Epub 2015 Nov 16.
Human Milk Feeding as a Protective Factor for Retinopathy of Prematurity: A Meta-analysis.
Zhou J, Shukla VV, John D, Chen C.

Abstract
CONTEXT:
Studies have suggested that human milk feeding decreases the incidence of retinopathy of prematurity (ROP); however, conflicting results have been reported.
OBJECTIVE:
The aim of this meta-analysis was to pool currently available data on incidence of ROP in infants fed human milk versus formula.
DATA SOURCES:
Medline, PubMed, and EBSCO were searched for articles published through February 2015.
STUDY SELECTION:
Longitudinal studies comparing the incidence of ROP in infants who were fed human milk and formula were selected. Studies involving donor milk were not included.
DATA EXTRACTION:
Two independent reviewers conducted the searches and extracted data. Meta-analysis used odds ratios (ORs), and subgroup analyses were performed.
RESULTS:
Five studies with 2208 preterm infants were included. Searches including various proportions of human milk versus formula, any-stage ROP, and severe ROP were defined to pool data for analyses. For any-stage ROP, the ORs (95% confidence intervals [CIs]) were as follows: exclusive human milk versus any

formula, 0.29 (0.12 to 0.72); mainly human milk versus mainly formula, 0.51 (0.26 to 1.03); any human milk versus exclusive formula, 0.54 (0.15 to 1.96); and exclusive human milk versus exclusive formula, 0.25 (0.13 to 0.49). For severe ROP, they were 0.11 (0.04 to 0.30), 0.16 (0.06 to 0.43), 0.42 (0.08 to 2.18), and 0.10 (0.04 to 0.29), respectively.
LIMITATIONS:
Prospective randomized studies being impossible because of ethical issues, we chose observational studies for analysis. A few studies involving subgroup analyses presented high heterogeneity.
CONCLUSIONS:
Based on current limited evidence, in very preterm newborns, human milk feeding potentially plays a protective role in preventing any-stage ROP and severe ROP.

PMID: 26574589 [PubMed - in process]

11.
Prenat Diagn. 2015 Dec;35(13):1269-77. doi: 10.1002/pd.4685. Epub 2015 Oct 26.
Routine use of array comparative genomic hybridization (aCGH) as standard approach for prenatal diagnosis of chromosomal abnormalities. Clinical experience of 1763 prenatal cases.
Papoulidis I, Sotiriadis A, Siomou E, Papageorgiou E, Eleftheriades M, Papadopoulos V, Oikonomidou E, Orru S, Manolakos E, Athanasiadis A.

Abstract
OBJECTIVE:
This study aims to evaluate the diagnostic yield of comparative genomic hybridization microarrays (aCGH) and compare it with conventional karyotype analysis of standard >5-Mb resolution.
METHOD:
A total of 1763 prenatal samples were analyzed by aCGH (CytoChip Focus Constitutional microarrays, BlueGnome, Cambridge). The diagnostic yield of chromosomal abnormalities detected by aCGH was assessed, compared with conventional karyotype analysis.
RESULTS:
The result was pathogenic/unknown penetrance in 125 cases (7.1%), and a variant of unknown significance (VOUS) was detected in 13 cases (0.7%). Out of the 125 cases with abnormal findings, 110 were also detected by conventional karyotype analysis. The aCGH increment in diagnostic yield was 0.9% (15/1763) and 1.6% when VOUS were included. Stratifying the sample according to indications for prenatal invasive testing, the highest values of diagnostic yield increment were observed for patients positive for second-trimester sonographic markers (1.5%) and for the presence of fetal structural anomalies (1.3%). In contrast, the incremental yield was marginal in patients with fetus with increased nuchal translucency (0.5%).
CONCLUSION:
The present study indicates that routine implementation of aCGH offers an incremental yield over conventional karyotype analysis, which is also present in cases with 'milder' indications, further supporting its use as a first-tier test. © 2015 John Wiley & Sons, Ltd.

PMID: 26289927 [PubMed - in process]

12.
Am J Epidemiol. 2016 Jan 1;183(1):15-23. doi: 10.1093/aje/kwv194. Epub 2015 Dec 13.
Race Disparities and Decreasing Birth Weight: Are All Babies Getting Smaller?
Catov JM, Lee M, Roberts JM, Xu J, Simhan HN.

Abstract
The mean infant birth weight in the United States increased for decades, but it might now be decreasing. Given race disparities in fetal growth, we explored race-specific trends in birth weight at Magee-Womens Hospital, Pittsburgh, Pennsylvania, from 1997 to 2011. Among singleton births delivered at 37-41 weeks (n = 70,607), we evaluated the proportions who were small for gestational age and large for gestational age and changes in mean birth weights over time. Results were stratified by maternal race/ethnicity. Since 1997, the number of infants born small for their gestational ages increased (8.7%-9.9%), whereas the number born large for their gestational ages decreased (8.9%-7.7%). After adjustment for gestational week at birth, maternal characteristics, and pregnancy conditions, birth weight decreased by 2.20 g per year (P < 0.0001). Decreases were greater for spontaneous births. Reductions were significantly greater in infants born to African-American women than in those born to white women (-3.78 vs. -1.88 per year; P for interaction = 0.010). Quantile regression models indicated that birth weight decreased across the entire distribution, but reductions among infants born to African-American women were limited to those in the upper quartile after accounting for maternal factors. Limiting the analysis to low-risk women eliminated birth weight reductions. Birth weight has decreased in recent years, and reductions were greater in infants born to African-American women. These trends might be explained by accumulation of risk factors such as hypertension and prepregnancy obesity that disproportionately affect African-American women. Our results raise the possibility of worsening race disparities in fetal growth.

KEYWORDS:
birth weight; growth restriction; macrosomia; obesity
PMID: 26667251 [PubMed - in process] PMCID: PMC4690476 [Available on 2017-01-01]

13.
Ultrasound Obstet Gynecol. 2015 Dec;46(6):650-8. doi: 10.1002/uog.14880.
Genomic microarray in fetuses with increased nuchal translucency and normal karyotype: a systematic review and meta-analysis.
Grande M, Jansen FA, Blumenfeld YJ, Fisher A, Odibo AO, Haak MC, Borrell A.

Abstract
OBJECTIVE:
To estimate the incremental yield of detecting copy number variants (CNVs) by genomic microarray over karyotyping in fetuses with increased nuchal translucency (NT) diagnosed by first-trimester ultrasound.
METHODS:
This was a systematic review conducted in accordance with PRISMA criteria. We searched PubMed, Ovid MEDLINE and Web of Science for studies published between January 2009 and January 2015 that described CNVs in fetuses with increased NT, usually defined as ≥ 3.5 mm, and normal karyotype. Search terms included: fetal or prenatal, nuchal translucency or cystic hygroma or ultrasound anomaly, array comparative genomic hybridization or copy number variants, with related search terms. Risk differences were pooled to estimate the overall and stratified microarray incremental yield using RevMan. Quality assessment of included studies was performed using the Quality Assessment tool for Diagnostic Accuracy Studies (QUADAS-2) checklist.
RESULTS:
Seventeen studies met the inclusion criteria for analysis. Meta-analysis indicated an incremental yield of

5.0% (95% CI, 2.0-8.0%) for the detection of CNVs using microarray when pooling results. Stratified analysis of microarray results demonstrated a 4.0% (95% CI, 2.0-7.0%) incremental yield in cases of isolated NT and 7.0% (95% CI, 2.0-12.0%) when other malformations were present. The most common pathogenic CNVs reported were 22q11.2 deletion, 22q11.2 duplication, 10q26.12q26.3 deletion and 12q21q22 deletion. The pooled prevalence for variants of uncertain significance was 1%.
CONCLUSION:
The use of genomic microarray provides a 5.0% incremental yield of detecting CNVs in fetuses with increased NT and normal karyotype.
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KEYWORDS:
copy number variants; cystic hygroma; genomic microarray; increased nuchal translucency; prenatal diagnosis
PMID: 25900824 [PubMed - in process]

14.
Am J Perinatol. 2015 Dec;32(14):1298-304. doi: 10.1055/s-0035-1563717. Epub 2015 Sep 9.
Maternal Obesity Class as a Predictor of Induction Failure: A Practical Risk Assessment Tool.
Ronzoni S, Rosen H, Melamed N, Porat S, Farine D, Maxwell C.

Abstract
Objective
To assess the impact of body mass index (BMI) on the rate of cesarean section (rCS) in induction of labor (IOL).
Study Design
A total of 7,543 singleton term pregnancies undergoing IOL (cervical dilatation at admission, CDA ≤ 3 cm) were divided according to BMI: underweight (n = 325); normal weight (NW) (n = 4,633); overweight (OW) (n = 1,610); and obese (n = 975). Age, parity, macrosomia, gestational age (GA), gestational weight gain (GWG), CDA, and IOL indications were considered. Results
A higher rate of macrosomia (15.0 vs. 11.1%; p < 0.0001), earlier induction (GA 39.7 ± 1.3 vs. 40.1 ± 1.3 weeks; p < 0.0001) for maternal indications (39.1 vs. 21.1%; p < 0.001), and lower CDA (≤1cm; 66.4 vs. 61.4%; p < 0.005) were observed in obese versus NW. The rate of weight gain above the recommended range was higher in obese (obese 70.6% vs. NW 43.9%; p < 0.001), despite a significantly lower mean GWG compared with NW (14 ± 7.5 vs. 16.5 ± 5.6 kg; p < 0.001). Compared with NW, OW and obese demonstrated a significantly higher rCS (OW 31.1% and obese 36.9% vs. NW 24.7%; p < 0.001). BMI represented an independent factor affecting the rCS (vs. NW; OW odds ratio [OR] 1.4; confidence interval [CI] 1.2-1.7; p < 0.001; obese OR 2.3; CI 1.9-2.7 p < 0.001).
Conclusion
In the case of IOL, obesity represents an independent factor associated with a significant increase of CS to be considered during induction counselling.
Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.
PMID: 26352685 [PubMed - in process]

15.
Int J Gynaecol Obstet. 2015 Dec;131(3):265-8. doi: 10.1016/j.ijgo.2015.05.027. Epub 2015 Aug 15.
A randomized placebo-controlled trial of preoperative tranexamic acid among women undergoing elective cesarean delivery.
Maged AM, Helal OM, Elsherbini MM, Eid MM, Elkomy RO, Dahab S, Elsissy MH.

Abstract
OBJECTIVE:
To study the efficacy and safety of preoperative intravenous tranexamic acid to reduce blood loss during and after elective lower-segment cesarean delivery.
METHODS:
A single-blind, randomized placebo-controlled study was undertaken of women undergoing elective lower-segment cesarean delivery of a full-term singleton pregnancy at a center in Cairo, Egypt, between November 2013 and November 2014. Patients were randomly assigned (1:1) using computer-generated random numbers to receive either 1g tranexamic acid or 5% glucose 15minutes before surgery. Preoperative and postoperative complete blood count, hematocrit values, and maternal weight were used to calculate the estimated blood loss (EBL) during cesarean, which was the primary outcome. Analyses included women who received their assigned treatment, whose surgery was 90minutes or less, and who completed follow-up.
RESULTS:
Analyses included 100 women in each group. Mean EBL was significantly higher in the placebo group (700.3±143.9mL) than in the tranexamic acid group (459.4±75.4mL; P<0.001). Only six women, all in the placebo group, experienced an EBL of more than 1000mL. There were no reports of thromboembolic events up to 4weeks postoperatively.
CONCLUSION:
Preoperative administration of tranexamic acid safely reduces blood loss during elective lower-segment cesarean delivery. Australian New Zealand Clinical Trials Registry:ACTRN12615000312549.

KEYWORDS:
Blood loss; Elective cesarean delivery; Tranexamic acid
PMID: 26341174 [PubMed - in process]