March 2015 Literature Alert

1.

Int J Gynaecol Obstet. 2015 Feb;128(2):100-5. doi: 10.1016/j.ijgo.2014.07.039. Epub 2014 Oct 22.

Early versus delayed oral feeding for patients after cesarean.

Guo J, Long S, Li H, Luo J, Han D, He T.

Abstract

BACKGROUND:

Early oral feeding (EOF) after cesarean delivery is still controversial.

OBJECTIVES:

To assess whether EOF is superior to delayed oral feeding (DOF) after cesarean in terms of safety and effectiveness.

SEARCH STRATEGY:

PubMed, Embase, and the Cochrane Library were searched for reports related to early feeding and cesarean published in English before June 30, 2014.

SELECTION CRITERIA:

Randomized controlled trials comparing at least one of six outcomes after EOF (≤12 hours after surgery) and DOF (after return of bowel sounds/movement or >12 hours) after cesarean delivery were included.

DATA COLLECTION AND ANALYSIS:

Data were extracted using a predesigned extraction form. Risk ratios or mean differences were calculated.

MAIN RESULTS:

A total of 20 studies were included, including 4584 women who had undergone cesarean. No significant differences were identified in patient satisfaction and frequency of postoperative complications. Compared with DOF, EOF promoted a quicker return of bowel sounds, flatus, bowel movement, and regular diet ($P<0.001$ for all). Significant reductions were also noted in duration and amount of intravenous fluids, length of hospital stay, and time to first breastfeeding ($P<0.001$ for all).

CONCLUSIONS:

There are no obvious advantages in withholding fluid and food after cesarean. Indeed, EOF offers some short-term benefits.

PMID: 25457588

2.

Ultrasound Obstet Gynecol. 2015 Mar;45(3):326-32. doi: 10.1002/uog.14667. Epub 2015 Jan 28.

Low rate of prenatal diagnosis among neonates with critical aortic stenosis: insight into the natural history in utero.

Freud LR, Moon-Grady A, Escobar-Diaz MC, Gotteiner NL, Young LT, McElhinney DB, Tworetzky W.

Abstract

OBJECTIVES:

To better understand the natural history and spectrum of fetal aortic stenosis (AS), we aimed to (1) determine the prenatal diagnosis rate of neonates with critical AS and a biventricular (BV) outcome, and (2) describe the findings at fetal echocardiography in patients diagnosed prenatally.

METHODS:

A multicenter, retrospective study was performed on neonates who presented with critical AS and who were discharged with a BV outcome from 2000 to 2013. The prenatal diagnosis rate was compared with that reported for hypoplastic left heart syndrome (HLHS). We reviewed fetal echocardiographic findings in patients who were diagnosed prenatally.

RESULTS:

In only 10 (8.5%) of 117 neonates with critical AS and a BV outcome was the diagnosis made prenatally, a rate significantly lower than that for HLHS in the contemporary era (82%; $P < 0.0001$). Of the 10 patients diagnosed prenatally, all had developed left ventricular dysfunction by a median gestational age of 33 (range, 28-35) weeks. When present, Doppler abnormalities such as retrograde flow in the aortic arch (n = 2), monophasic mitral inflow (n = 3) and left-to-right flow across the foramen ovale (n = 8) developed late in gestation (median 33 weeks).

CONCLUSION:

The prenatal diagnosis rate of critical AS and a BV outcome among neonates is very low, probably owing to a relatively normal four-chamber view in mid-gestation with development of significant obstruction in the third trimester. The natural history contrasts with that of severe mid-gestation AS with evolving HLHS and suggests that the gestational timing of development of significant AS has an important impact on subsequent left-heart growth in utero.

PMID: 25251721

3.

Ultrasound Obstet Gynecol. 2015 Mar;45(3):294-300. doi: 10.1002/uog.14722. Epub 2015 Feb 1.

Single fetal demise in monochorionic pregnancies: incidence and patterns of cerebral injury.

van Klink JM1, van Steenis A, Steggerda SJ, Genova L, Sueters M, Oepkes D, Lopriore E.

Abstract

OBJECTIVE:

To evaluate the incidence, type and severity of cerebral injury in the surviving monochorionic (MC) cotwin after single fetal demise in twin pregnancies.

METHODS:

All MC pregnancies with single fetal demise that were evaluated at the Leiden University Medical Center between 2002 and 2013 were included. Perinatal characteristics, neonatal outcome and the presence of cerebral injury, observed on neuroimaging, were recorded for all cotwin survivors.
RESULTS:
A total of 49 MC pregnancies with single fetal demise, including one MC triplet, were included in the study (n = 50 cotwins). Median gestational age at occurrence of single fetal demise was 25 weeks and median interval between single fetal demise and live birth was 61 days, with a median gestational age at birth of 36 weeks. Severe cerebral injury was diagnosed in 13 (26%) of the 50 cotwins and was detected antenatally in 4/50 (8%) and postnatally in 9/50 (18%) cases. Cerebral injury was mostly due to hypoxic-ischemic injury resulting in cystic periventricular leukomalacia, middle cerebral artery infarction or injury to basal ganglia, thalamus and/or cortex. Risk factors associated with severe cerebral injury were advanced gestational age at the occurrence of single fetal demise (odds ratio (OR), 1.14 (95% CI, 1.01-1.29) for each week of gestation; P = 0.03), twin-twin transfusion syndrome developing prior to single fetal demise (OR, 5.0 (95% CI, 1.30-19.13); P = 0.02) and a lower gestational age at birth (OR, 0.83 (95% CI, 0.69-0.99) for each week of gestation; P = 0.04).
CONCLUSIONS:
Single fetal demise in MC pregnancies is associated with severe cerebral injury occurring in 1 in 4 surviving cotwins. Routine antenatal and postnatal neuroimaging, followed by standardized long-term follow-up, is mandatory.
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PMID: 25377504

4.
Lancet. 2015 Feb 14;385(9968):607-16. doi: 10.1016/S0140-6736(14)61728-1. Epub 2014 Oct 6.
Livebirth after uterus transplantation.
Brännström M, Johannesson L, Bokström H, Kvarnström N, Mölne J, Dahm-Kähler P, Enskog A, Milenkovic M, Ekberg J, Diaz-Garcia C, Gäbel M, Hanafy A, Hagberg H, Olausson M4, Nilsson L.

Abstract
BACKGROUND:
Uterus transplantation is the first available treatment for absolute uterine infertility, which is caused by absence of the uterus or the presence of a non-functional uterus. Eleven human uterus transplantation attempts have been done worldwide but no livebirth has yet been reported.
METHODS:
In 2013, a 35-year-old woman with congenital absence of the uterus (Rokitansky syndrome) underwent transplantation of the uterus in Sahlgrenska University Hospital, Gothenburg, Sweden. The uterus was donated from a living, 61-year-old, two-parous woman. In-vitro fertilisation treatment of the recipient and her partner had been done before transplantation, from which 11 embryos were cryopreserved.
FINDINGS:
The recipient and the donor had essentially uneventful postoperative recoveries. The recipient's first menstruation occurred 43 days after transplantation and she continued to menstruate at regular intervals of between 26 and 36 days (median 32 days). 1 year after transplantation, the recipient underwent her first single embryo transfer, which resulted in pregnancy. She was then given triple immunosuppression (tacrolimus, azathioprine, and corticosteroids), which was continued throughout pregnancy. She had three episodes of mild

rejection, one of which occurred during pregnancy. These episodes were all reversed by corticosteroid treatment. Fetal growth parameters and blood flows of the uterine arteries and umbilical cord were normal throughout pregnancy. The patient was admitted with pre-eclampsia at 31 full weeks and 5 days, and 16 h later a caesarean section was done because of abnormal cardiotocography. A male baby with a normal birthweight for gestational age (1775 g) and with APGAR scores 9, 9, 10 was born.

INTERPRETATION:

We describe the first livebirth after uterus transplantation. This report is a proof-of-concept for uterus transplantation as a treatment for uterine factor infertility. Furthermore, the results show the feasibility of live uterus donation, even from a postmenopausal donor.

FUNDING:

Jane and Dan Olsson Foundation for Science.

PMID: 25301505

5.

Lancet. 2015 Feb 14;385(9968):629-39. doi: 10.1016/S0140-6736(14)61651-2. Epub 2014 Oct 15.

A population-based, multifaceted strategy to implement antenatal corticosteroid treatment versus standard care for the reduction of neonatal mortality due to preterm birth in low-income and middle-income countries: the ACT cluster-randomised trial.

Althabe F1, Belizán JM2, McClure EM3, Hemingway-Foday J3, Berrueta M2, Mazzoni A2, Ciganda A4, Goudar SS5, Kodkany BS5, Mahantshetti NS5, Dhaded SM5, Katageri GM6, Metgud MC5, Joshi AM5, Bellad MB5, Honnungar NV5, Derman RJ7, Saleem S8, Pasha O8, Ali S8, Hasnain F8, Goldenberg RL9, Esamai F10, Nyongesa P10, Ayunga S10, Liechty EA11, Garces AL12, Figueroa L13, Hambidge KM14, Krebs NF14, Patel A15, Bhandarkar A16, Waikar M16, Hibberd PL17, Chomba E18, Carlo WA19, Mwiche A18, Chiwila M20, Manasyan A19, Pineda S13, Meleth S3, Thorsten V3, Stolka K3, Wallace DD3, Koso-Thomas M21, Jobe AH22, Buekens PM23.

Abstract

BACKGROUND:

Antenatal corticosteroids for pregnant women at risk of preterm birth are among the most effective hospital-based interventions to reduce neonatal mortality. We aimed to assess the feasibility, effectiveness, and safety of a multifaceted intervention designed to increase the use of antenatal corticosteroids at all levels of health care in low-income and middle-income countries.

METHODS:

In this 18-month, cluster-randomised trial, we randomly assigned (1:1) rural and semi-urban clusters within six countries (Argentina, Guatemala, India, Kenya, Pakistan, and Zambia) to standard care or a multifaceted intervention including components to improve identification of women at risk of preterm birth and to facilitate appropriate use of antenatal corticosteroids. The primary outcome was 28-day neonatal mortality among infants less than the 5th percentile for birthweight (a proxy for preterm birth) across the clusters. Use of antenatal corticosteroids and suspected maternal infection were additional main outcomes. This trial is registered with ClinicalTrials.gov, number NCT01084096.

FINDINGS:

The ACT trial took place between October, 2011, and March, 2014 (start dates varied by site). 51 intervention clusters with 47,394 livebirths (2520 [5%] less than 5th percentile for birthweight) and 50 control clusters with

50,743 livebirths (2258 [4%] less than 5th percentile) completed follow-up. 1052 (45%) of 2327 women in intervention clusters who delivered less-than-5th-percentile infants received antenatal corticosteroids, compared with 215 (10%) of 2062 in control clusters (p<0·0001). Among the less-than-5th-percentile infants, 28-day neonatal mortality was 225 per 1000 livebirths for the intervention group and 232 per 1000 livebirths for the control group (relative risk [RR] 0·96, 95% CI 0·87-1·06, p=0·65) and suspected maternal infection was reported in 236 (10%) of 2361 women in the intervention group and 133 (6%) of 2094 in the control group (odds ratio [OR] 1·67, 1·33-2·09, p<0·0001). Among the whole population, 28-day neonatal mortality was 27·4 per 1000 livebirths for the intervention group and 23·9 per 1000 livebirths for the control group (RR 1·12, 1·02-1·22, p=0·0127) and suspected maternal infection was reported in 1207 (3%) of 48,219 women in the intervention group and 867 (2%) of 51,523 in the control group (OR 1·45, 1·33-1·58, p<0·0001).

INTERPRETATION:

Despite increased use of antenatal corticosteroids in low-birthweight infants in the intervention groups, neonatal mortality did not decrease in this group, and increased in the population overall. For every 1000 women exposed to this strategy, an excess of 3·5 neonatal deaths occurred, and the risk of maternal infection seems to have been increased.

FUNDING:

Eunice Kennedy Shriver National Institute of Child Health and Human Development.

PMID: 25458726

6.

N Engl J Med. 2015 Feb 26;372(9):814-24. doi: 10.1056/NEJMoa1405789.

Outcomes of pregnancy after bariatric surgery.

Johansson K, Cnattingius S, Näslund I, Roos N, Trolle Lagerros Y, Granath F, Stephansson O, Neovius M.

Abstract

BACKGROUND:

Maternal obesity is associated with increased risks of gestational diabetes, large-for-gestational-age infants, preterm birth, congenital malformations, and stillbirth. The risks of these outcomes among women who have undergone bariatric surgery are unclear.

METHODS:

We identified 627,693 singleton pregnancies in the Swedish Medical Birth Register from 2006 through 2011, of which 670 occurred in women who had previously undergone bariatric surgery and for whom presurgery weight was documented. For each pregnancy after bariatric surgery, up to five control pregnancies were matched for the mother's presurgery body-mass index (BMI; we used early-pregnancy BMI in the controls), age, parity, smoking history, educational level, and delivery year. We assessed the risks of gestational diabetes, large-for-gestational-age and small-for-gestational-age infants, preterm birth, stillbirth, neonatal death, and major congenital malformations.

RESULTS:

Pregnancies after bariatric surgery, as compared with matched control pregnancies, were associated with lower risks of gestational diabetes (1.9% vs. 6.8%; odds ratio, 0.25; 95% confidence interval [CI], 0.13 to 0.47; P<0.001) and large-for-gestational-age infants (8.6% vs. 22.4%; odds ratio, 0.33; 95% CI, 0.24 to 0.44; P<0.001). In contrast, they were associated with a higher risk of small-for-gestational-age infants (15.6% vs. 7.6%; odds ratio,

2.20; 95% CI, 1.64 to 2.95; P<0.001) and shorter gestation (273.0 vs. 277.5 days; mean difference -4.5 days; 95% CI, -2.9 to -6.0; P<0.001), although the risk of preterm birth was not significantly different (10.0% vs. 7.5%; odds ratio, 1.28; 95% CI, 0.92 to 1.78; P=0.15). The risk of stillbirth or neonatal death was 1.7% versus 0.7% (odds ratio, 2.39; 95% CI, 0.98 to 5.85; P=0.06). There was no significant between-group difference in the frequency of congenital malformations.
CONCLUSIONS:
Bariatric surgery was associated with reduced risks of gestational diabetes and excessive fetal growth, shorter gestation, an increased risk of small-for-gestational-age infants, and possibly increased mortality. (Funded by the Swedish Research Council and others.).
PMID: 25714159

7.
Fetal Diagn Ther. 2015 Feb 18. [Epub ahead of print]
Characterization of Atypical Preeclampsia.
Rojas-Arias JL, Ortiz-López LD, Orduña-Aparicio WJ, Quintero-Loaiza CA, Acuña-Osorio E, Franco-Hernández A, Parra-Saavedra M, Molina-Giraldo S, Figueras F.

Abstract
Objective:
To characterize patients with atypical preeclampsia (PE), in relation to socio-demographic characteristics, clinical presentation, maternal complications and perinatal outcome.
Materials and Methods:
Between July 1, 2011 and November 30, 2013, a cohort was created of women attended at a Obstetric High-dependency Unit who met criteria for atypical PE: gestational hypertension with severe hypertension or symptoms or laboratory signs suggestive of microangiopathy/hemolysis; normotensive proteinuria with the presence of symptoms or laboratory signs suggestive of microangiopathy/hemolysis; presence of PE or eclampsia or HELLP syndrome appearing after 48 h postpartum, and, PE or eclampsia appearing before 20 weeks of pregnancy.
Results:
A total of 200 women fulfilling criteria for atypical PE, were included: 61.5% corresponded to non-proteinuric gestational hypertension, 35.5% to normotensive proteinuria and 3% to PE/eclampsia in late postpartum. Criteria for severe maternal morbidity were present in 12% of the cases and there were no maternal deaths. There were 6 perinatal deaths.
Conclusion:
Atypical preeclampsia is a type of preeclampsia not fully recognized that is associated with maternal and neonatal morbidity, mainly related to smallness-for-gestational-age and low birth weight. Vasospasm symptoms are a key element to detect this condition.
PMID: 25721893

8.
Fetal Diagn Ther. 2015 Feb 5. [Epub ahead of print]

Accuracy of Predicting Fetal Loss in Twin Pregnancies Using Gestational Age-Dependent Weight Discordance Cut-Offs: Analysis of the STORK Multiple Pregnancy Cohort.

D'Antonio F, Khalil A, Morlando M, Thilaganathan B.

Abstract

Objectives:

A third-trimester fetal weight discordance of 25% has been proposed as an independent predictor of fetal loss in twin pregnancies. As fetal weight gain at this stage of pregnancy increases exponentially, it is not entirely certain whether a single cut-off for inter-twin weight discordance is appropriate. The aim of this study was to investigate whether a single weight discordance cut-off can be used or whether different cut-offs should be adopted according to the gestational age at assessment.

Methods:

This was a retrospective study of all twin pregnancies of known chorionicity from a large regional cohort over a 10-year period. Receiver operating characteristic curve and logistic regression analyses were used to explore the relation between estimated fetal weight (EFW) discordance detected within 4 weeks from the occurrence of the outcome and single fetal loss at different gestational age windows.

Results:

957 twin pregnancies (173 monochorionic and 784 dichorionic) were included in the analysis. EFW discordance was independently associated with the occurrence of single fetal loss in twin pregnancies in each gestational age window. Ultrasound EFW discordance had an area under the curve of 0.77 (95% CI: 0.67-0.87) for the prediction of single fetal loss in the third trimester of pregnancy, with an optimal cut-off of around 25% (23.2%). The optimal cut-offs of EFW discordance for the prediction of single fetal loss were different in each gestational age window.

Conclusion:

The accuracy of EFW discordance in predicting single fetal loss in twin pregnancies varies during the third trimester of pregnancy. The degree of fetal weight discordance associated with fetal loss decreases during the third trimester, suggesting that the weight discordance threshold for intervention should vary according to gestational age.

PMID: 25660975

9.

Prenat Diagn. 2015 Feb;35(2):183-91. doi: 10.1002/pd.4519. Epub 2014 Nov 19.

First trimester screening for early and late preeclampsia based on maternal characteristics, biophysical parameters, and angiogenic factors.

Crovetto F, Figueras F, Triunfo S, Crispi F, Rodriguez-Sureda V, Dominguez C, Llurba E, Gratacós E.

Abstract

OBJECTIVE:

The aim of this article is to develop the best first-trimester screening model for preeclampsia (PE) based on maternal characteristics, biophysical parameters, and angiogenic factors in a low-risk population.

METHODS:

A prospective cohort of 9462 pregnancies undergoing first-trimester screening is used. Logistic regression predictive models were developed for early and late PE (cut-off of 34 weeks' gestation at delivery). Data

included the a priori risk (maternal characteristics), mean arterial pressure (MAP), and uterine artery (UtA) Doppler (11-13 weeks) in all cases. Plasma levels (8-11 weeks) of human chorionic gonadotrophin, pregnancy-associated plasma protein A, placental growth factor (PlGF), and soluble Fms-like tyrosine kinase-1 (sFlt-1) were analyzed using a nested case-control study design.
RESULTS:
The best model for early PE (n = 57, 0.6%) included a priori risk, MAP, UtA Doppler, PlGF, and sFlt-1 achieving detection rates of 87.7% and 91.2% for 5% and 10% false-positive rates, respectively (AUC: 0.98 [95% CI: 0.97-0.99]). For late PE (n = 246, 2.6%), the best model included the a priori risk, MAP, UtA Doppler, PlGF, and sFlt-1 achieving detection rates of 68.3% and 76.4% at 5% and 10% of false-positive rates, respectively (AUC: 0.87 [95% CI: 0.84-0.90]).
CONCLUSION:
Preeclampsia can be predicted with high accuracy in general obstetric populations with a low risk for PE, by combined algorithms. Angiogenic factors substantially improved the prediction.

PMID: 25346181

10.
BJOG. 2015 Feb;122(3):370-9. doi: 10.1111/1471-0528.12993. Epub 2014 Jul 24.
New biomarkers for the prediction of spontaneous preterm labour in symptomatic pregnant women: a comparison with fetal fibronectin.
Liong S, Di Quinzio MK, Fleming G, Permezel M, Rice GE, Georgiou HM.

Abstract
OBJECTIVE:
To identify cervicovaginal fluid (CVF) biomarkers predictive of spontaneous preterm birth in women with symptoms of preterm labour.
DESIGN:
Retrospective cohort study.
SETTING:
Melbourne, Australia.
POPULATION:
Women with a singleton pregnancy admitted to the Emergency Department between 22 and 36 weeks of gestation presenting with symptoms of preterm labour.
METHODS:
Two-dimensional electrophoresis was used to analyse the CVF proteome. Validation of putative biomarkers was performed using enzyme-linked immunosorbent assay (ELISA) in an independent cohort. Optimal concentration thresholds of putative biomarkers were determined and the predictive efficacy for preterm birth was compared with that of fetal fibronectin.
MAIN OUTCOME MEASURES:
Prediction of spontaneous preterm labour within 7 days.
RESULTS:
Differentially expressed proteins were identified by proteomic analysis in women presenting with 'threatened' preterm labour without cervical change who subsequently delivered preterm (n = 12 women). ELISA validation

using an independent cohort (n = 129 women) found albumin and vitamin D-binding protein (VDBP) to be significantly altered between women who subsequently experienced preterm birth and those who delivered at term. Prediction of preterm delivery within 7 days using a dual biomarker model (albumin/VDBP) provided 66.7% sensitivity, 100% specificity, 100% positive predictive value (PPV) and 96.7% negative predictive value (NPV), compared with fetal fibronectin yielding 66.7, 87.9, 36.4 and 96.2%, respectively (n = 64). Using the maximum number of screened samples, the predictive utility of albumin/VDBP yielded a sensitivity of 77.8%, specificity and PPV of 100% and NPV of 98.0% (n = 109).
CONCLUSIONS:
The dual biomarker model of albumin/VDBP is more efficacious than fetal fibronectin in predicting spontaneous preterm delivery in symptomatic women within 7 days. A clinical diagnostic trial is required to test this model on a larger population to confirm these findings and to further refine the predictive values. © 2014 Royal College of Obstetricians and Gynaecologists.
PMID: 25056135

11.
BJOG. 2015 Feb;122(3):344-50. doi: 10.1111/1471-0528.12854. Epub 2014 May 22.
Routine labour epidural analgesia versus labour analgesia on request: a randomised non-inferiority trial.
Wassen MM, Smits LJ, Scheepers HC, Marcus MA, Van Neer J, Nijhuis JG, Roumen FJ.

Abstract
OBJECTIVE:
To assess the effect on mode of delivery of the routine use of labour epidural analgesia (EA) compared with analgesia on request.
DESIGN:
Randomised non-inferiority trial.
SETTING:
One university and one non-university teaching hospital in The Netherlands.
POPULATION:
Women with a singleton pregnancy in cephalic presentation beyond 36 + 0 weeks' gestation.
METHODS:
Participants were randomly allocated to receive either routine EA or analgesia on request. Intention-to-treat (ITT) and per-protocol (PP) analyses were performed, with confidence intervals (CI) calculated for the differences in percentages or means.
MAIN OUTCOME MEASURES:
Rate of operative delivery (instrumental vaginal or caesarean), labour characteristics, and adverse labour and neonatal outcomes.
RESULTS:
A total of 488 women were randomly allocated to the routine EA (n = 233) or analgesia on request group (n = 255). In the routine EA group, 89.3% (208/233) received EA. According to ITT analysis, 34.8% (81/233) women in the routine EA group had an operative delivery, compared with 26.7% (68/255) in the analgesia on request group (difference 8.1%, 95% CI -0.1 to 16.3). The difference in rate of operative deliveries according to the PP analysis was statistically significant (difference 8.9%, 95% CI 0.4 to 17.4). Inferiority of EA could not be rejected, as in both analyses the upper bound of the confidence interval exceeded the pre-specified inferiority criterion of

+10%. Women in the routine EA group had more adverse effects, including hypotension (difference 9.5%, 95% CI 4.2 to 14.9), and motor blockade (difference 6.8%, 95% CI 1.1 to 12.5).
CONCLUSION:
Non-inferiority of routine EA could not be demonstrated in this trial. Routine EA use is likely to lead to more operative deliveries and more maternal adverse effects. The results of our study do not justify routine use of EA.

PMID: 24849943

12.
Pediatrics. 2015 Feb;135(2):e405-15. doi: 10.1542/peds.2014-2408. Epub 2015 Jan 19.
Cardiovascular risk factors in children after repeat doses of antenatal glucocorticoids: an RCT.
McKinlay CJ, Cutfield WS, Battin MR, Dalziel SR, Crowther CA, Harding JE; ACTORDS Study Group.

Abstract
BACKGROUND:
Treatment of women at risk for preterm birth with repeat doses of glucocorticoids reduces neonatal morbidity but could have adverse long-term effects on cardiometabolic health in offspring. We assessed whether exposure to repeat antenatal betamethasone increased risk factors for later cardiometabolic disease in children whose mothers participated in the Australasian Collaborative Trial of Repeat Doses of Corticosteroids.
METHODS:
Women were randomized to betamethasone or placebo treatment, ≥ 7 days after an initial course of glucocorticoids, repeated each week that they remained at risk for preterm birth at <32 weeks' gestation. In this follow-up study, children were assessed at 6 to 8 years' corrected age for body composition, insulin sensitivity, ambulatory blood pressure, and renal function.
RESULTS:
Of 320 eligible childhood survivors, 258 were studied (81%; 123 repeat betamethasone group; 135 placebo [single course] group). Children exposed to repeat antenatal betamethasone and those exposed to placebo had similar total fat mass (geometric mean ratio 0.98, 95% confidence interval [CI] 0.78 to 1.23), minimal model insulin sensitivity (geometric mean ratio 0.89, 95% CI 0.74 to 1.08), 24-hour ambulatory blood pressure (mean difference systolic 0 mm Hg, 95% CI -2 to 2; diastolic 0 mm Hg, 95% CI -1 to 1), and estimated glomerular filtration rate (mean difference 1.2 mL/min/1.73 m(2), 95% CI -3.2 to 5.6).
CONCLUSIONS:
Exposure to repeat doses of antenatal betamethasone compared with a single course of glucocorticoids does not increase risk factors for cardiometabolic disease at early school age.
PMID: 25601978

13.
Am J Obstet Gynecol. 2015 Mar;212(3):337.e1-337.e14. doi: 10.1016/j.ajog.2014.09.031. Epub 2014 Sep 28.
Chronic hypertension in pregnancy and the risk of congenital malformations: a cohort study.
Bateman BT, Huybrechts KF, Fischer MA, Seely EW, Ecker JL, Oberg AS, Franklin JM, Mogun H, Hernandez-Diaz S.

Abstract
OBJECTIVE:
Chronic hypertension is a common medical condition in pregnancy. The purpose of the study was to examine the association between maternal chronic hypertension and the risk of congenital malformations in the offspring.
STUDY DESIGN:
We defined a cohort of 878,126 completed pregnancies linked to infant medical records using the Medicaid Analytic Extract. The risk of congenital malformations was compared between normotensive controls and those with treated and untreated chronic hypertension. Confounding was addressed using propensity score matching.
RESULTS:
After matching, compared with normotensive controls, pregnancies complicated by treated chronic hypertension were at increased risk of congenital malformations (odds ratio [OR], 1.3; 95% confidence interval [CI], 1.2-1.5), as were pregnancies with untreated chronic hypertension (OR 1.2; 95% CI, 1.1-1.3). In our analysis of organ-specific malformations, both treated and untreated chronic hypertension was associated with a significant increase in the risk of cardiac malformations (OR, 1.6; 95% CI, 1.4-1.9 and OR, 1.5; 95% CI, 1.3-1.7, respectively). These associations persisted across a range of sensitivity analyses.
CONCLUSION:
There is a similar increase in the risk of congenital malformations (particularly cardiac malformations) associated with treated and untreated chronic hypertension that is independent of measured confounders. Studies evaluating the teratogenic potential of antihypertensive medications must control for confounding by indication. Fetuses and neonates of mothers with chronic hypertension should be carefully evaluated for potential malformations, particularly cardiac defects.
PMID: 25265405

14.
Am J Obstet Gynecol. 2015 Mar;212(3):332.e1-9. doi: 10.1016/j.ajog.2014.11.041. Epub 2014 Dec 2.
Expanding the scope of noninvasive prenatal testing: detection of fetal microdeletion syndromes.
Wapner RJ, Babiarz JE, Levy B, Stosic M, Zimmermann B, Sigurjonsson S, Wayham N, Ryan A, Banjevic M, Lacroute P, Hu J, Hall MP, Demko Z, Siddiqui A, Rabinowitz M, Gross SJ, Hill M, Benn P.

Abstract
OBJECTIVE:
The purpose of this study was to estimate the performance of a single-nucleotide polymorphism (SNP)-based noninvasive prenatal test for 5 microdeletion syndromes.
STUDY DESIGN:
Four hundred sixty-nine samples (358 plasma samples from pregnant women, 111 artificial plasma mixtures) were amplified with the use of a massively multiplexed polymerase chain reaction, sequenced, and analyzed with the use of the Next-generation Aneuploidy Test Using SNPs algorithm for the presence or absence of deletions of 22q11.2, 1p36, distal 5p, and the Prader-Willi/Angelman region.
RESULTS:
Detection rates were 97.8% for a 22q11.2 deletion (45/46) and 100% for Prader-Willi (15/15), Angelman (21/21), 1p36 deletion (1/1), and cri-du-chat syndromes (24/24). False-positive rates were 0.76% for 22q11.2 deletion

syndrome (3/397) and 0.24% for cri-du-chat syndrome (1/419). No false positives occurred for Prader-Willi (0/428), Angelman (0/442), or 1p36 deletion syndromes (0/422).
CONCLUSION:
SNP-based noninvasive prenatal microdeletion screening is highly accurate. Because clinically relevant microdeletions and duplications occur in >1% of pregnancies, regardless of maternal age, noninvasive screening for the general pregnant population should be considered.
PMID: 25479548

15.
Am J Obstet Gynecol. 2015 Mar;212(3):375.e1-375.e11. doi: 10.1016/j.ajog.2014.09.020. Epub 2014 Sep 20.
The effect of a very short interpregnancy interval and pregnancy outcomes following a previous pregnancy loss.
Wong LF, Schliep KC, Silver RM, Mumford SL, Perkins NJ, Ye A, Galai N, Wactawski-Wende J, Lynch AM, Townsend JM, Faraggi D, Schisterman EF.

Abstract
OBJECTIVE:
We sought to assess the relationship between a short interpregnancy interval (IPI) following a pregnancy loss and subsequent live birth and pregnancy outcomes.
STUDY DESIGN:
A secondary analysis of women enrolled in the Effects of Aspirin in Gestation and Reproduction trial with a human chorionic gonadotropin-positive pregnancy test and whose last reproductive outcome was a loss were included in this analysis (n = 677). IPI was defined as the time between last pregnancy loss and last menstrual period of the current pregnancy and categorized by 3-month intervals. Pregnancy outcomes include live birth, pregnancy loss, and any pregnancy complications. These were compared between IPI groups using multivariate relative risk estimation by Poisson regression.
RESULTS:
Demographic characteristics were similar between IPI groups. The mean gestational age of prior pregnancy loss was 8.6 ± 2.8 weeks. The overall live birth rate was 76.5%, with similar live birth rates between those with IPI ≤3 months as compared to IPI >3 months (adjusted relative risk [aRR], 1.07; 95% confidence interval [CI], 0.98-1.16). Rates were also similar for periimplantation loss (aRR, 0.95; 95% CI, 0.51-1.80), clinically confirmed loss (aRR, 0.75; 95% CI, 0.51-1.10), and any pregnancy complication (aRR, 0.88; 95% CI, 0.71-1.09) for those with IPI ≤3 months as compared to IPI >3 months.
CONCLUSION:
Live birth rates and adverse pregnancy outcomes, including pregnancy loss, were not associated with a very short IPI after a prior pregnancy loss. The traditional recommendation to wait at least 3 months after a pregnancy loss before attempting a new pregnancy may not be warranted.
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Thoracoamniotic shunts for the management of fetal lung lesions and pleural effusions: a single-institution review and predictors of survival in 75 cases.

Peranteau WH, Adzick NS, Boelig MM, Flake AW, Hedrick HL, Howell LJ, Moldenhauer JS, Khalek N, Martinez-Poyer J, Johnson MP.

Abstract

PURPOSE:

Hydrops and pulmonary hypoplasia are associated with significant morbidity and mortality in the setting of a congenital lung lesion or pleural effusion (PE). We reviewed our experience using in utero thoracoamniotic shunts (TA) to manage fetuses with these diagnoses.

METHODS:

A retrospective review of fetuses diagnosed with a congenital lung lesion or pleural effusion who underwent TA shunt placement from 1998-2013 was performed.

RESULTS:

Ninety-seven shunts were placed in 75 fetuses. Average gestational age (±SD) at shunt placement and birth was 25±3 and 34±5 weeks. Shunt placement resulted in a 55±21% decrease in macrocystic lung lesion volume and complete or partial drainage of the PE in 29% and 71% of fetuses. 69% of fetuses presented with hydrops, which resolved following shunt placement in 83%. Survival was 68%, which correlated with GA at birth, % reduction in lesion size, unilateral pleural effusions, and hydrops resolution. Surviving infants had prolonged NICU courses and often required either surgical resection or tube thoracostomy in the perinatal period.

CONCLUSION:

TA shunts provide a therapeutic option for select fetuses with large macrocystic lung lesions or PEs at risk for hydrops and/or pulmonary hypoplasia. Survival following shunting depends on GA at birth, reduction in mass size, and hydrops resolution.

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