South-East Asia Network for Newborn & Birth Defects

Monthly E-blast

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This Month...

Media centre

ACT now, ACT together 2020-2021 Impact Report

This 2020-2021 Impact Report looks back at the challenges and progress of the ACT-Accelerator over the last year. It highlights the accelerated actions taken by each of the ACT-Accelerator pillars to ensure low- and middle-income countries are not left behind in the race to protect their health workers, test their populations, and ensure appropriate treatments, medical supplies and more recently vaccines, are delivered to where they are needed most.

Read full information

Birth Defects

Comprehensive assessment of the associations between maternal diabetes and structural birth defects in offspring: a phenome-wide association study

Jeremy M Schraw, Peter H Langlois, Philip J Lupo

PubMed: January 2021

Abstract

PURPOSE

Our objective was to comprehensively evaluate the risk of a broad range of birth defects among offspring of women with diabetes, overall and stratified by pregestational versus gestational diagnosis, using the phenome-wide association (PheWAS) methodology.

METHODS

We performed a registry linkage study of all live births (>6,500,000) and birth defects cases (>290,000) in Texas, 1999-2015. We ascertained diabetes from birth and fetal death certificates. We calculated prevalence rate ratios (PRR) for phenotypes with ≥10 cases among exposed offspring (n = 130).

RESULTS

Diabetes was associated with the prevalence of any defect (PRR 1.40, 95% confidence interval [CI] 1.38-1.42), multiple defects (PRR 1.86, 95% CI 1.81-1.91), and 60 specific phenotypes, including novel (hypospadias, mitral stenosis) and previously reported phenotypes (renal a-/dysgenesis, spinal anomalies). Pregestational diabetes was a stronger risk factor for any defect (PRR 2.00, 95% CI 1.93-2.07), multiple defects (PRR 3.27, 95% CI 3.11-3.44), and the 60 specific phenotypes evaluated. Gestational diabetes was associated with any defect (PRR 1.21, 95% CI 1.19-1.23) and 47 specific birth defects phenotypes, although associations were weaker than for pregestational diabetes.

CONCLUSIONS

The PheWAS is an efficient way to identify risk factors for disease using population-based registry data. Pregestational diabetes is associated with a broader range of phenotypes than previously reported. Because diabetes is diagnosed in 1% of women prior to pregnancy and 6%-9% during pregnancy, our results highlight a significant public health concern.

Maternal ethnicity and the prevalence of British pregnancies affected by neural tube defects

Jordana N Peake, Rachel L Knowles, Jill Shawe, Judith Rankin, Andrew J Copp

PubMed: March 2021

Abstract

BACKGROUND

Few data are available on the prevalence of neural tube defects (NTDs) within different ethnic communities of the United Kingdom. This study aimed to calculate prevalence estimates for NTD-

affected pregnancies, classified by maternal ethnicity, and to explore why variations in prevalence might exist.

METHODS

A cross-sectional study was performed with data from regional congenital anomaly registers in England and Wales, for NTD-affected pregnancies between 2006 and 2011. Using binomial regression models, we examined NTD-affected pregnancy prevalence estimates and rate ratios (PRRs), by maternal ethnicity.

RESULTS

The prevalence of NTDs was 12.14 per 10,000 births, with no differences between study years. Anencephaly, encephalocele and spina bifida occurred at 4.98, 1.37 and 5.80 per 10,000 births respectively. Mothers of Indian ethnicity were 1.84 times more likely (95% CI: 1.24, 2.73) and Bangladeshi mothers 2.86 times more likely (95% CI: 1.48, 5.53) than White mothers to have an NTD-affected pregnancy, after adjusting for maternal deprivation and maternal age. The excess prevalence in Indian mothers was specifically for anencephaly (PRR 2.57; 95% CI: 1.52, 4.34), and in Bangladeshi mothers the trend was for increased spina bifida (PRR 3.86; 95% CI: 0.72, 8.69). Anencephaly in Indian mothers was especially associated with other congenital anomalies (non-isolated NTDs).

CONCLUSIONS

Different British ethnic groups vary in NTD prevalence. The excess prevalence of anencephaly as a non-isolated NTD in pregnancies of Indian mothers could indicate involvement of genetic or other unmeasured behavioral factors. Future work is needed to seek etiological explanations for the ethnicity differences and to develop improved methods for primary prevention.

Stillbirth

Increase of stillbirth and decrease of late preterm infants during the COVID-19 pandemic lockdown

Mario De Curtis, Leonardo Villani, Arianna Polo

BMJ: June 2021

Abstract

Italy was the first country in Europe violently affected by the COVID-19 pandemic. The total lockdown of 3 months was necessary and effective to stem the infection. However, it has determined a series of effects that changed the life of millions of people. The objective of this retrospective study is to analyse some perinatal data during the lockdown and to compare them with the same months of 2019. The data refer to the Lazio region where Rome is located with 5.8 million people and where about 10% of Italian births take place every year.

We obtained data from the Lazio hospital discharge database, which records perinatal information on all newborns. We have considered only singletons to limit the influence of other determinants of premature birth. The total numbers of all very preterm, late preterm, at term, late term, stillbirths, total births and the numbers and per cents of caesarean delivery were determined in the lockdown period (March, April, May 2020) and in the same period of 2019.

Read full article

Ambient air pollution and stillbirth: An updated systematic review and meta-analysis of epidemiological studies

Huanhuan Zhang, Xiaoan Zhang, Qiong Wang, Yuanzhi Xu, Yang Feng Zengli Yu, Cunrui Huang

ScienceDirect: June 2021

Abstract

Stillbirth has a great impact on contemporary and future generations. Increasing evidence show that ambient air pollution exposure is associated with stillbirth. However, previous studies showed inconsistent findings. To clarify the effect of maternal air pollution exposure on stillbirth, we searched for studies examining the associations between air pollutants, including particulate matter (diameter ≤ 2.5 μm [PM2.5] and ≤10 μm [PM10]) and gaseous pollutants (sulfur dioxide [SO2], nitrogen dioxide [NO2], carbon monoxide [CO] and ozone [O3]), and stillbirth published in PubMed, Web of Science, Embase and Cochrane Library until December 11, 2020. The pooled effect estimates and 95% confidence intervals (CI) were calculated, and the heterogeneity was evaluated using Cochran's Q test and I2 statistic. Publication bias was assessed using funnel plots and Egger's tests. Of 7546 records, 15 eligible studies were included in this review. Results of long-term exposure showed that maternal third trimester PM2.5 and CO exposure (per 10 μg/m3 increment) increased the odds of stillbirth, with estimated odds ratios (ORs) of 1.094 (95% CI: 1.008–1.180) and 1.0009 (95% CI: 1.0001–1.0017), respectively. Entire pregnancy exposure to PM2.5 was also associated with stillbirth (OR: 1.103, 95% CI: 1.074–1.131). A 10 μg/m3 increment in O3 in the first trimester was associated with stillbirth, and the estimated OR was 1.028 (95% CI: 1.001–1.055). Short-term exposure (on lag day 4) to O3 was also associated with stillbirth (OR: 1.002, 95% CI: 1.001–1.004). PM10, SO2 and NO2 exposure had no significant effects on the incidence of stillbirth. Additional well-designed cohort studies and investigations regarding potential biological mechanisms are warranted to elaborate the suggestive association that may help improve intergenerational inequality.

Newborn

Vertical transmission of SARS-CoV2 during pregnancy: A high-risk cohort

Mariane de Fátima Yukie Maeda, Maria de Lourdes Brizot, Maria Augusta Bento Cicaroni Gibelli, Silvia Maria Ibidi, Werther Brunow de Carvalho, Mara Sandra Hoshida, Clarisse Martins Machado, Ester Cerdeira Sabino, Lea Campos de Oliveira da Silva, Thomas Jaenisch, Maria Cássia Jacintho Mendes-Correa, Philippe Mayaud, Rossana Pulcinelli Vieira Francisco

Wiley Online Library: June 2021

Abstract

OBJECTIVE

Identify the potential for and risk factors of SARS-CoV-2 vertical transmission.

METHODS

Symptomatic pregnant women with COVID-19 diagnosis in whom PCR for SARS-CoV-2 was performed at delivery using maternal serum and at least one of the biological samples: cord blood (CB), amniotic fluid (AF), colostrum and/or oropharyngeal swab (OPS) of the neonate. The association of parameters with maternal, AF and/or CB positivity and the influence of SARS-CoV-2 positivity in AF and/or CB on neonatal outcomes were investigated.

RESULTS

Overall, 73.4% (80/109) were admitted in hospital due to COVID-19, 22.9% needed intensive care and there were four maternal deaths. Positive RT-PCR for SARS-CoV-2 was observed in 14.7% of maternal blood, 13.9% of AF, 6.7% of CB, 2.1% of colostrum and 3.7% of OPS samples. The interval between COVID-19 symptoms and delivery was inversely associated with SARS-CoV-2 positivity in

the maternal blood (p = 0.002) and in the AF and/or CB (p = 0.049). Maternal viremia was associated with positivity for SARS-CoV-2 in AF and/or CB (p = 0.001). SARS-CoV-2 positivity in the compartments was not associated with neonatal outcomes.

CONCLUSION

Vertical transmission is possible in pregnant women with COVID-19 and a shorter interval between maternal symptoms and delivery is an influencing factor.

Neurodevelopmental outcomes at age 5 among children born preterm: EPIPAGE-2 cohort study

Véronique Pierrat, neonatologist1, Laetitia Marchand-Martin, statistician, Stéphane Marret, Catherine Arnaud, Valérie Benhammou, Gilles Cambonie, Thierry Debillon, Marie-Noëlle Dufourg, Catherine Gire, François Goffinet, Monique Kaminski, Alexandre Lapillonne, Andrei Scott Morgan, Jean-Christophe Rozé, Sabrina Twilhaar, Marie-Aline Charles, Pierre-Yves Ancel

BMJ: April 2021

Abstract

OBJECTIVES

To describe neurodevelopment at age 5 among children born preterm.

DESIGN

Population based cohort study, EPIPAGE-2.

SETTING

France, 2011.

PARTICIPANTS

4441 children aged 5½ born at 24-26, 27-31, and 32-34 weeks

MAIN OUTCOME MEASURES

Severe/moderate neurodevelopmental disabilities, defined as severe/moderate cerebral palsy (Gross Motor Function Classification System (GMFCS) ≥2), or unilateral or bilateral blindness or deafness, or full scale intelligence quotient less than minus two standard deviations (Wechsler Preschool and Primary Scale of Intelligence, 4th edition). Mild neurodevelopmental disabilities, defined as mild cerebral palsy (GMFCS-1), or visual disability ≥3.2/10 and <5/10, or hearing loss <40 dB, or full scale intelligence quotient (minus two to minus one standard deviation) or developmental coordination disorders (Movement Assessment Battery for Children, 2nd edition, total score less than or equal to the fifth centile), or behavioural difficulties (strengths and difficulties questionnaire, total score greater than or equal to the 90th centile), school assistance (mainstream class with support or special school), complex developmental interventions, and parents' concerns about development. The distributions of the scores in contemporary term born children were used as reference. Results are given after multiple imputation as percentages of outcome measures with exact binomial 95% confidence intervals.

RESULTS

Among 4441 participants, 3083 (69.4%) children were assessed. Rates of severe/moderate neurodevelopmental disabilities were 28% (95% confidence interval 23.4% to 32.2%), 19% (16.8% to 20.7%), and 12% (9.2% to 14.0%) and of mild disabilities were 38.5% (33.7% to 43.4%), 36%

(33.4% to 38.1%), and 34% (30.2% to 37.4%) at 24-26, 27-31, and 32-34 weeks, respectively. Assistance at school was used by 27% (22.9% to 31.7%), 14% (12.1% to 15.9%), and 7% (4.4% to 9.0%) of children at 24-26, 27-31, and 32-34 weeks, respectively. About half of the children born at 24-26 weeks (52% (46.4% to 57.3%)) received at least one developmental intervention which decreased to 26% (21.8% to 29.4%) for those born at 32-34 weeks. Behaviour was the concern most commonly reported by parents. Rates of neurodevelopment disabilities increased as gestational age decreased and were higher in families with low socioeconomic status.

CONCLUSIONS

In this large cohort of children born preterm, rates of severe/moderate neurodevelopmental disabilities remained high in each gestational age group. Proportions of children receiving school assistance or complex developmental interventions might have a significant impact on educational and health organisations. Parental concerns about behaviour warrant attention.

Quality Improvement

Immediate "Kangaroo Mother Care" and Survival of Infants with Low Birth Weight

Pihu Arora, Anitha Kommalur, Sahana Devadas, Mallesh Kariyappa, Suman P N Rao
NEJM: May 2021

Abstract

BACKGROUND

"Kangaroo mother care," a type of newborn care involving skin-to-skin contact with the mother or other caregiver, reduces mortality in infants with low birth weight (<2.0 kg) when initiated after stabilization, but the majority of deaths occur before stabilization. The safety and efficacy of kangaroo mother care initiated soon after birth among infants with low birth weight are uncertain.

Read full Article

Small and sick newborn care during the COVID-19 pandemic: global survey and thematic analysis of healthcare providers' voices and experiences

Suman P N Rao, Nicole Minckas, M Medvedev, David Gathara, Prashantha Y, Abiy Seifu Estifanos, Alfrida Camelia Silitonga, Arun Singh Jadaun, Ebunoluwa A Adejuyigbe, Helen Brotherton, Sugandha Arya, Rani Gera, Chinyere V Ezeaka, Abdou Gai, Abebe Gebremariam Gobezayehu, Queen Dube, Aarti Kumar, Helga Naburi, Msandeni Chiume, Victor Tumukunde, Araya Abrha Medhanyie, Gyikua Plange-Rhule, Josephine Shabini, Eric O Ohuma, Henok Tadele, Fitsum W/Gebrie, Amanuel Hadgu, Lamesgin Alamineh, Rajesh Mehta, Elizabeth Molyneux, E Lawn

BMJ: March 2021

Abstract

INTRODUCTION

The COVID-19 pandemic is disrupting health systems globally. Maternity care disruptions have been surveyed, but not those related to vulnerable small newborns. We aimed to survey reported disruptions to small and sick newborn care worldwide and undertake thematic analysis of healthcare providers' experiences and proposed mitigation strategies.

METHODS

Using a widely disseminated online survey in three languages, we reached out to neonatal healthcare providers. We collected data on COVID-19 preparedness, effects on health personnel and on newborn care services, including kangaroo mother care (KMC), as well as disruptors and solutions.

RESULTS

We analysed 1120 responses from 62 countries, mainly low and middle-income countries (LMICs). Preparedness for COVID-19 was suboptimal in terms of guidelines and availability of personal protective equipment. One-third reported routine testing of all pregnant women, but 13% had no testing capacity at all. More than 85% of health personnel feared for their own health and 89% had increased stress. Newborn care practices were disrupted both due to reduced care-seeking and a compromised workforce. More than half reported that evidence-based interventions such as KMC were discontinued or discouraged. Separation of the mother–baby dyad was reported for both COVID-positive mothers (50%) and those with unknown status (16%). Follow-up care was disrupted primarily due to families' fear of visiting hospitals (~73%).

CONCLUSION

Newborn care providers are stressed and there is lack clarity and guidelines regarding care of small newborns during the pandemic. There is an urgent need to protect life-saving interventions, such as KMC, threatened by the pandemic, and to be ready to recover and build back better.