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In This Issue

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In This Issue

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This issue of Journal of Development Origins of Health and Disease has 16 original publications including an important rapid communication addressing prenatal effects of COVID. In addition, we have one review articles, thirteen original manuscripts, and one brief report. Readers are also invited to review the letter to the editor and, as always, are encouraged to correspond on manuscripts of interest.

Rapid communication:

Will prenatal exposure to SARS-COV-2 define a birth cohort with accelerated aging in the century ahead? Easterlin et al discuss how COVID-19 during pregnancy may affect fetal and postnatal development with specific adverse impacts on health and aging. The authors utilized the long-term impacts from the 1918 Influenza pandemic as the basis for this hypothesis, and call for further research on the consequences of *in utero* exposure to COVID-19.

Brief report:

A cautionary note on using Mendelian randomization to examine the Barker hypothesis and developmental origins of health and disease (DOHaD). D'Urso and colleagues discussed the use of Mendelian randomization to investigate the association between low birth weight and cardiometabolic outcomes. The authors suggest that traditional Mendelian analyses, which do not take into account the relationship between maternal and offspring genotypes, may be biased in favor of a causal relationship consistent with the Barker hypothesis. They recommend using a conditional analysis framework to test the hypothesis of DOHaD.

Review article:

Association between gestational cannabis exposure and maternal, perinatal, placental, and childhood outcomes. Ayonrinde and coauthors discussed the likely increase in cannabis exposure as a result of legislative changes. The authors caution that gestational cannabis can be associated with impaired placental blood flow and increased risk for small for gestational age births, while childhood and adolescent outcomes may include an increased risk of depression and attention deficit hyperactivity disorders.

Original articles:

Pregnancy outcomes in women with preexisting thyroid diseases: A French cohort study. Lecorguillé et al utilize the ELFE French longitudinal birth cohort to examine the effect of thyroid disease in pregnancy. Pre-pregnancy thyroid disease had an increased odds of premature rupture of membranes. Children born from mothers with hypothyroidism had a smaller head circumference at birth, a finding that needs additional replication and further study.

Effects of maternal periconceptional undernutrition in sheep on offspring glucose-insulin axis function into adulthood. Oliver and colleagues demonstrated that maternal periconceptional undernutrition impacted multiple aspects of offspring glucose homeostasis into adulthood, indicating long-term metabolic consequences on the offspring.

Influence of prenatal stress on metabolic abnormalities induced by postnatal intake of a high-fat diet in Balb/c mice. Juárez and colleagues utilized pregnant mice subjected to restraint stress between gestational day 14 and 21 and exposure to high-fat diet. Prenatal stress alone produced disturbances in males including increased cholesterol and triglycerides. High-fat diet resulted in an increase in glucose, insulin levels. Notable sex differences were observed with females more resilient to prenatal stress effects.

Impact of *in vitro* embryo culture and transfer on blood pressure regulation in the adolescent lamb. Padhee et al assessed the effects of *in vitro* embryo culture in the absence or presence of human serum and a methyl donor. The results indicate that there are no programmed effects of the embryo culture on basal blood pressure or baroreflex control mechanisms in adolescent offspring.

Dyslipidemia, insulin resistance, and impairment of placental metabolism in the offspring of obese mothers. Bucher and coauthors assessed plasma lipids and measures of insulin resistance as well as placental markers in women who are obese or normal weight. Both newborn cord blood levels and placental protein and metabolomic results indicate that infants of obese mothers experience early life dyslipidemia and insulin resistance.

The effects of *in utero* exposure to teratogens on organ size: A prospective paediatric study. De Smidt and colleagues examined the effect of maternal smoking and alcohol consumptions on ultrasound measurements of organ size in children age 5 years. The results demonstrate that kidney length and pancreas size are affected by *in utero* exposure to nicotine. The authors postulate that these findings may contribute to cardiometabolic risk in later life.

Maternal intake of alpha-lipoic acid prevents the development of symptoms associated with a fructose-rich diet in the male offspring in Wistar rats. Rabaglino et al examined the effect of the antioxidant alpha-lipoic acid on male offspring who were fed with supplemental 10% fructose drinking water. Fructose intake impacted the oxidated capacity of the liver, an effect that was prevented by the alpha-linolenic treatment.

Dynamic DNA methylation changes in early versus late adulthood suggests nondeterministic effects of childhood adversity: A meta-analysis. Artigas and colleagues utilized two gene expression omnibus data sets which included adverse childhood experience measures. The results provide evidence that epigenetic markers of adverse childhood experiences are age dependent, but not defined in the long ter. These results suggest that there may be windows for interventions to prevent detrimental effects of adverse childhood experiences.

Complimentary feeding practices and their association with adiposity indicators at 12 months of age. Rodiguez-Cano et al examined infant feeding practices from birth to six months in association with adiposity indicators at 12 months. Children provided complimentary feeds at less than 4 months of age showed higher BMI and waist circumference. The authors emphasize that exclusive of breastfeeding through six months of age may be associated with a lower risk of adiposity at 12 months.

Evolution of perinatal outcomes and sociodemographic variables in Chile (1996-2017). Mardones and Acuna assessed the evolution of birth weight, birth length, and gestational age of delivery over the period from 1996 to 2017. A strong positive association was observed between mothers' years of education and the risk category of 37-38 weeks.

The impact of diet during adolescence on the neonatal health of offspring: Evidence of the importance of preconception diet. The HUNT study. Van Lippevelde and colleagues utilized the Norwegian HUNT study to examine the effects of parents' nutritional status prior to and at the time of conception on physical and mental health of the child. The results suggest that there are causal links between the consumption of healthy versus unhealthy food and meal patterns in adolescence with neonatal outcome their own offspring.

Reduced peanut sensitization with maternal peanut consumption and early peanut introduction with breastfeeding. Azad et al utilized the CHILD birth cohort to examine the impact of maternal reported peanut consumption during pregnancy and breastfeeding with child peanut sensitization. The combination of maternal peanut consumption and breastfeeding at the time of peanut introduction during infancy may decrease the risk of child peanut sensitization.

Inter-pregnancy interval and later pediatric cardiovascular health of the offspring - a population-based cohort study. Imterat and coauthors examined the effect of short (less than 6 months) and long (greater than 16 months) interpregnancy interval on long-term cardiovascular morbidity of the offspring. The results of the study of over 160,000 deliveries demonstrated that extremely short and long interpregnancy intervals did not impact long-term cardiovascular hospitalizations of offspring.

Letter to the Editor:

Jones et al provide an important discussion related to a previous published to the paper of Molinaro in which the authors discussed translating developmental origins of health and disease in practice. The current letter identifies three areas of developmental neuroscience that are highly relevant to clinical practice.

Sincerely,

Michael G. Ross, MD, MPH
Editor-in-Chief

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