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In this issue

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In This Issue

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This issue of JDOHaD contains 1 brief report and 10 original articles. The topics span perinatal nutrition to later life stress and include both human and animal models.

Brief report

Is low birth weight an additional risk factor for hypertension in paediatric patient's after kidney transplantation? Santos *et al.* examined 83 patients post-renal transplantation, demonstrating post-transplantation hypertension in 54% of recipients. Among additional factors (duration following transplantation, current obesity), low birth weight was significantly associated with post-transplantation hypertension. The authors suggest that low birth weight-associated endothelial dysfunction, impairment of nephron number, or alterations in biomarkers may contribute to the post-transplantation hypertension.

Original articles

Maternal nutritional restriction during gestation impacts differently on offspring muscular and elastic arteries and is associated with increased carotid resistance and ventricular afterload in maturity. Zocalo and colleagues studied pregnant ewes exposed to standard nutrition or nutritional restriction. When offspring reached adult life, cerebral vascular resistances and carotid resistance were higher from nutritional restricted dams. The impact of nutritional restriction varied depending upon elastic and muscular arteries.

"Comfort-foods" chronic intake has different behavioral and neurobiological effects in male rats exposed or not too early-life stress. Cunha and coauthors examined Wistar exposed to this stress of reduced nesting protocol (early life stress, ELS). As adults, both ELS and control rats were exposed to standard rat chow or a high-fat, high-sugar diet. Both ELS and high-fat, high-sugar diet were associated with alterations in anxiety or corticosterone, whereas high-fat, high-sugar diet superimposed on ELS resulted in increased adiposity. These findings emphasize the potential additive effects of developmental and dietary alterations.

Early life adversity increases the salience of later life stress: an investigation of interactive effects in the PSID. Saxton and Chyu examined the interactions between childhood adversity, adulthood adversity, and adult physical and mental health using the panel study of income dynamics. The findings suggest that an accumulation of risk or a duel risk model of stress adversely impacts on health, chronic conditions, and psychological distress.

(-)-Epicatechin reduces adiposity in male offspring of obese rats. De los Santos *et al.* examined the effect of the phytochemical (-)-Epicatechin (EPI) on male offspring exposed to maternal obesity and high-fat diet. EPI administration in the male offspring significantly reduced the amount of visceral fat and the size of adipose tissue while normalizing insulin homeostasis. These studies suggest that EPI may constitute a treatment for programmed or dietary obesity.

Intrauterine growth restriction affects Z-scores of anthropometric parameters during the first 6 years in a very low-birth-weight-children born at less than 30 weeks of gestation. Shoji and colleagues examined the Z-scores of body weight and BMI in infants born with very low birth weight, with or without IUGR. Among boys, body weight and BMI were significantly lower among SGA children at 1, 3, and 6 years of age, whereas body weight and body length were significantly lower among SGA girls. These findings indicate that small for gestational children do not catch up in body weight or BMI through 6 years of age.

Prepregnancy obesity is associated with lower psychomotor development scores in boys at age 3 in a low-income, minority birth cohort. Nichols and colleagues examined the impact of prepregnancy maternal BMI and gestational weight gain on childhood neurodevelopment. In covariant analysis, maternal obesity was associated with significantly lower psychomotor development index scores in boys, though not in girls. The authors suggest that the obesity exposure in urban population may have significant public health implications.

Feasibility of conducting an early pregnancy diet and lifestyle E-health intervention; the pregnancy lifestyle activity nutrition (PLAN) project. Huang *et al.* randomized women between 8 and 11 weeks' gestation to an E-health intervention or routine antenatal care (diet, physical activity, and well-being advise). The authors found no difference in gestational weight gain or birth size, though infants weighed less at 3 months and had a lower Ponderal index in the intervention group. These results demonstrate the feasibility of an E-health program and suggest the potential for a reduction in infant adiposity.

Nutrient and hormone composition of milk is altered in rodent dams post-bariatric surgery. Deer and coauthors examined dams having received vertical sleeve gastrectomy and fed a high-fat diet, as compared to sham surgery and chow fed or sham surgery and high-fat diet. Significant differences among the groups were demonstrated for glucose, triglyceride content, and milk protein. These findings suggest that milk composition can be a factor in reducing the rate of offspring growth during lactation.

Pkd1-targeted mutation reveals a role for the Wolffian duct in autosomal dominant polycystic kidney disease. Tee and colleagues used Cre-Lox recombinant mice to examine Pkd1 deletions. Although heterozygous deletion of Pkd1 resulted in kidneys that were phenotypically indistinguishable from controls, there were significant gene and micro-RNA changes that suggest a predisposition toward polycystic kidney disease. These results suggest that the Wolffian duct may be an early epithelial target for signals that cause cyst formation in polycystic kidney disease.

Association between birth weight and childhood cardiovascular disease risk factors in West Virginia. Umer and coauthors utilized linked data from three cross-sectional databases in West Virginia to examine associations between birth weight and childhood cardiovascular disease. Low birth weight was associated with higher LDL and triglycerides, and lower HDL levels, though the child's current BMI at 11 years of age partially mediated the relationship between birth weight and cardiovascular risk factors. These findings offer further support for a role of the prenatal environment in fetal development and the adverse impact of low birth weight on offspring cardiovascular health.

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