Oral Presentation Abstracts

Poster Abstracts

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EFFECTIVENESS OF A RISK REDUCTION PROGRAM FOR WOMEN WITH HYPERTENSIVE DISORDERS OF PREGNANCY AND GESTATIONAL DIABETES

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BACKGROUND: Hypertensive disorders of pregnancy (HDP) (i.e., preeclampsia, gestational hypertension) and gestational diabetes mellitus (GDM) significantly increase a woman's risk of premature cardiovascular disease (CVD). CardioPrevent is a standardized primary prevention intervention delivered by trained coaches designed to reduce CVD risk. This evaluation estimated the effect of CardioPrevent PostPartum (CPPP) on health outcomes in high-risk postpartum women.
METHODS: Patients with recent history (≤5 years) of a HDP and/or GDM were referred by physician to CPPP. They received 14 hours of health counselling over 1 year. Outcomes were measured at baseline, 6, and 12 months. The primary outcomes were change in mean lifetime risk score for CVD (%) at 6- and 12-months. Participant characteristics were summarized using descriptive statistics. Outcomes were analyzed using repeated measures analysis of variance (ANOVA).
RESULTS: At the time of evaluation (June 2020), of the 228 participants enrolled in CPPP, 104 and 75 had complete six-month and 12-month data, respectively. Significant decreases in lifetime CVD risk scores were observed between baseline and 6-months (33.2% vs. 25.9%; $p < 0.001$) and baseline and 12-months (33.5% vs. 24.0%; $p < 0.001$). Between baseline and 12-months, significant improvements ($p < 0.05$) were observed for: total cholesterol (5.09 vs. 4.55); LDL (2.94 vs. 2.59); total cholesterol-to-HDL ratio (3.63 vs. 3.30); triglycerides (1.36 vs. 1.16); HADS anxiety score (6.52 vs. 4.19); HADS depression score (5.72 vs. 3.53); perceived stress scale score (16.3 vs. 12.2); and, waist circumference in cm (96.1 vs. 92.5).
CONCLUSIONS: Important improvements in CVD risk were observed during participation in CPPP among this high-risk population.

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BLOOD PRESSURE TRAJECTORIES ACROSS PREGNANCY AND ASSOCIATIONS WITH GESTATIONAL AGE AT BIRTH: A FUNCTIONAL DATA ANALYTIC APPROACH

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BACKGROUND: Research has revealed important, group-level differences in maternal blood pressure trajectories across pregnancy. These trajectories are typically constructed using multivariate statistical methods and while studies have produced useful information, these methods ignore several sources of statistical bias and the functional, dynamic processes that give rise to a single blood pressure observation.
METHODS: In this study, we applied a functional data analysis and reduction technique to explore dominant modes of blood pressure variation across pregnancy, and multivariate analyses to examine whether these trajectories were related to gestational age at birth. Clinical blood pressure observations were available from 370 women who participated in a longitudinal pregnancy cohort study conducted in Montreal, Quebec, Canada. Functional data analysis was used to smooth blood pressure data and then to conduct a functional principal component analysis to examine predominant modes of variation.
RESULTS: Three eigenfunctions explained >95% of the total variance in blood pressure. The first accounted for approximately 80% of the variance and was characterized by a late-decrease pattern in blood pressure; the second explained 10% of the variance and captured a late-increase pattern; and the third accounted for approximately 7% of the variance and captured a mid-decrease pattern. The late-decrease pattern of blood pressure was associated with longer gestation, and the late-increase pattern was associated with shorter gestation.
CONCLUSIONS: Our results demonstrate the usefulness and applicability of functional data analysis to model repeated maternal blood pressure observations and many other time-related cardiovascular processes across pregnancy. These findings add to previous research investigating blood pressure trajectories across pregnancy through identification of additional, potentially clinically important modes of variation.