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Maternal Health Edition

Central hemodynamics and arterial health research insights

62 papers and abstracts
published between 2008-2023*

Here are some of the highlights.

Arterial Stiffness as a Preeclampsia Predictor | February 2023

Arterial stiffness for the early prediction of pre-eclampsia compared with blood pressure, uterine artery Doppler and angiogenic biomarkers: a prospective cohort study

The first trimester of pregnancy acts as a natural cardiovascular stress test, revealing underlying vascular abnormalities that may hinder the body's ability to meet increased pregnancy demands. A study by Kim Phan and her team at McGill University found that arterial stiffness was a more effective predictor of pre-eclampsia in high-risk pregnant women during weeks 10-13 of gestation than peripheral blood pressure, uterine artery Doppler, or angiogenic biomarkers.

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Glycaemia During Pregnancy | January 2021

Maternal glycaemia during pregnancy and child carotid intima media thickness, pulse wave velocity and augmentation index

A team at the National University Health System in Singapore led by Wen Yuan investigated the association between maternal glucose levels during pregnancy and cardiovascular risk markers in their children at age 6. Involving 1,247 pregnant women, the research revealed that elevated fasting plasma glucose levels were correlated with heightened carotid intima-media thickness and increased arterial stiffness in the offspring. Surprisingly, no such association was found with blood pressure. This investigation underscores the lasting impact of gestational diabetes on vascular structure and function in children. The findings emphasize the significance of monitoring maternal glycemia during pregnancy and providing education to individuals at risk, shedding light on potential long-term health implications.

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Sleep Apnea and Pregnancy | October 2021

Effect of Maternal Obstructive Sleep Apnea-Hypopnea on 24-Hour Blood Pressure, Nocturnal Blood Pressure Dipping and Arterial Stiffness in Hypertensive Disorders of Pregnancy

P. Panyarath and colleagues at McGill University investigated the link between obstructive sleep apnea-hypopnea (OSAH) and pregnancy outcomes in an ongoing pilot randomized controlled trial. The research aims to assess the impact of OSAH treatment on blood pressure and arterial stiffness in pregnant women. Results indicated that a majority of women with hypertensive disorders of pregnancy and OSAH exhibited non-dipping blood pressure, and increased arterial stiffness correlated with the severity of OSAH during REM sleep. These findings suggest that addressing OSAH could be a targeted approach to improve blood pressure and mitigate vascular risks in women with hypertensive disorders during pregnancy.

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*As of January 2024, results from PubMed Central using "SphygmoCor" as the search term.

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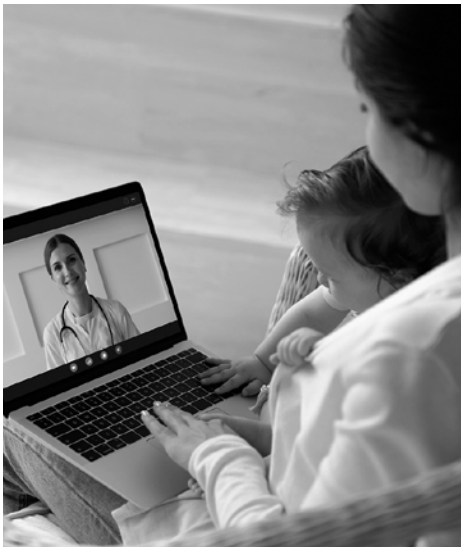

Preeclampsia's Impact on Postpartum Hemodynamics | May 2011

Cardiovascular System during the Post Partum State in Women with a History of Preeclampsia

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Caroline Evans and colleagues at the University of Pittsburgh explored cardiovascular differences in postpartum women with a history of preeclampsia versus uncomplicated pregnancies. In a study involving 68 participants, they found that those with prior preeclampsia had elevated blood pressure, increased vascular resistance, and greater peripheral vascular stiffness, along with endothelial dysfunction and insulin resistance. Importantly, these women maintained higher blood pressure levels even after delivery, indicating an increased risk of hypertension later in life. This research underscores the lasting impact of preeclampsia on cardiovascular health, emphasizing the need for ongoing monitoring in postpartum care.

In Vitro Fertilization Cycles in the Absence of a Corpus Luteum | January 2019

Increased Preeclampsia Risk and Reduced Aortic Compliance With In Vitro Fertilization Cycles in the Absence of a Corpus Luteum

Frauke von Versen-Höynck, from Stanford University School of Medicine, spearheaded a multi-site study examining the influence of IVF pregnancies without a corpus luteum (CL) on maternal circulatory adaptations and the risk of preeclampsia. The researchers assessed women with and without CL before, during, and after pregnancy, utilizing carotid-femoral pulse wave velocity and transit time as indicators of arterial compliance. The findings revealed that IVF without CL disrupts maternal circulatory adaptations, heightening the risk of preeclampsia.

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Cardiovascular Risk in Gestational Diabetes | January 2017

Leptin and adiponectin as predictors of cardiovascular risk after gestational diabetes mellitus

A research team at University of Oslo led Tove Lekva investigated the association between gestational diabetes mellitus (GDM), cardiovascular risk, and plasma adiponectin, leptin, and the leptin/adiponectin (L/A) ratio in a group of 300 women during and after pregnancy. They discovered that a high L/A ratio during pregnancy, particularly in women with GDM, is linked to an unfavorable cardiovascular risk profile, suggesting that these biomarkers during pregnancy can predict future cardiovascular risk in this group.

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Impact of Gestational Hypertension on Arterial Stiffness | August 2014

Arterial Stiffness and Wave Reflection 1 Year After a Pregnancy Complicated by Hypertension

A research team led by Deborah Ehrenthal explored the connection between hypertensive disorders of pregnancy (HDP), blood pressure, and arterial stiffness in women 1 year after delivery. Differences in blood pressure and augmentation index (AIx) were found, but not pulse wave velocity. The higher average blood pressure among women with HDP was independent of obesity. The increase in AIx may be explained by impaired endothelial function caused by HDP.

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Impact of Exercise on Offspring | November 2020

The Effect of Exercise During Pregnancy on Maternal and Offspring Vascular Outcomes: a Pilot Study

Áine Brislane and her team conducted a pilot study to explore the impact of exercise during the first trimester of pregnancy on maternal and offspring vascular outcomes, with a specific focus on cerebral autoregulation changes. Their findings suggested a potential link between maternal exercise and reduced carotid artery diameter in offspring, indicating the need for further investigation in this area.

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