Journal of Pregnancy and Child Health
ISSN: 2376-127X

Khan, J Preg Child Health 2022, 9:11

Mini Review Open Access

Pregnancy Problems and Subsequent Vascular Ultrasonography Measurements

Fahman Khan*

Department of Department of Science & Public Health, Centre of Disease Research, Canada

Abstract

Complications during pregnancy can even predispose a mother to developing cardiovascular disease later in life. We investigated the relationship between endothelial dysfunction and arterial stiffness post-pregnancy measurements and pregnancy complications. Young's Elastic Modulus (YEM), carotid Intima-Media Thickness (IMT), Flow-Mediated Dilatation (FMD), and carotid artery distensibility. Vascular changes may be the cause of the increased cardiovascular risk in mothers seen after low birth weight and hypertensive disorders, and some of this increased risk may have existed prior to pregnancy.

Keywords: Hypertensive; Endothelial; Pregnancy

Introduction

Pregnancy complications may even be a risk factor for developing cardiovascular disease later in life, according to several studies. Women who give birth to babies who are preterm or low birth weight are more likely to develop cardiovascular disease, high blood pressure, and insulin resistance later in life. Pre-eclampsia patients are more likely to develop diabetes, metabolic syndrome, and cardiovascular disease because they have high blood pressure and lipid levels after giving birth. Less is known about the pathways underlying these associations. It is also unclear whether these women have a higher genetic or baseline risk of developing cardiovascular disease, which manifests during pregnancy, or whether pregnancy-related complications cause this higher risk. An indicator of endothelial health is Flow-Mediated Dilatation (FMD) [1].

Following inflation and deflation of a blood pressure cuff on the lower forearm, the brachial artery diameter is measured using ultrasound. The prevalence of FMD is typically linked to improved cardiovascular health. Young adults with low or declining FMD have a higher risk of developing hypertension and a poor cardiovascular profile, regardless of other known cardiovascular risk factors. Pre-eclampsia, gestational hypertension, or the delivery of a small-for-gestational-age baby have all been associated with reduced FMD and endothelial dysfunction postpartum, according to several studies. Carotid intima-media thickness is an indicator of atherosclerosis, a measure of artery wall thickening, and a subclinical marker of cardiovascular disease. Few studies have compared carotid intima-media thickness and reproductive outcomes. Pre-eclampsia was linked in one study to increased Intima-Media Thickness (IMT) when observed around 7 months after delivery, and carotid plaque risk was linked to stillbirth. IMT was highest in women who were nulliparous among women aged 45 to 79, slightly higher in those who had multiple children, and lowest in those who gave birth only once. Another study discovered that people with higher parity had higher carotid IMT, but this was primarily because of associations with aging. FMD and carotid IMT have an antagonistic relationship, according to the Cardiovascular Risk in Young Finns study. Arterial compliance, or how quickly the arteries can adjust to and recover from variations in arterial pressure, is linked to myocardial dysfunction. Women have more pronounced aging-related artery stiffening than men, although overall, women have better carotid compliance than men [2].

Carotid artery distensibility and Young's elastic modulus are two measures of arterial stiffness that take changes in vessel diameter into consideration. Women who have given birth to preterm infants or small-for-gestational-age children as well as those who had hypertensive problems during pregnancy have been found to have higher arterial stiffness. In the Cardiovascular Risk in Young Finns study, several endothelial function and carotid artery elasticity indices were looked at in pregnant women at various stages. FMD was found to be comparable to non-pregnant controls and did not significantly vary over time. While carotid artery distensibility decreased over pregnancy, Young's elastic modulus increased. Our prospective cohort study, which was conducted in accordance with the Declaration of Helsinki for research involving humans, included women with singleton pregnancies who went in for a routine ultrasound at the Department of Obstetrics and Gynecology, University of Szeged between September 2014 and November 2015 once in the second or third trimester. 5-7% of pregnancies are affected by hypertension while pregnant, and 70% of instances include first pregnancies. Pregnant women have a 1-2% prevalence of Chronic Hyper Tension (CHT), and 3-6% of cases are complicated by Gestational Hyper Tension (GHT), which has been on the rise in recent years. Although it is a significant factor in maternal and foetal morbidity and mortality, little is known about its pathophysiological underpinnings. The majority of individuals do not exhibit any clinical symptoms, however it is crucial to stress that hypertension is only one sign of pre-eclampsia, or its initial stage. The proper development of pregnancies depends on the uterine and placental vascularization. Pathological placental development can result in placental insufficiency, which can then cause premature birth, intrauterine hypoxia, or even intrauterine death [3-5].

Elevated uterine circulation resistance can also be caused by pathological placental development. Few studies have been able to examine these cardiovascular risk markers over a longer period of time following pregnancy problems, and fewer yet have looked at the impact

***Corresponding author:** Fahman Khan, Department of Department of Science & Public Health, Centre of Disease Research, Canada, E-mail: fah.k@lpl.ca

Received: 1-Nov-2022, Manuscript No: jpch-22-82278, **Editor assigned:** 2-Nov-2022, PreQC No: jpch-22-82278(PQ), **Reviewed:** 15-Nov-2022, QC No: jpch-22-82278, **Revised:** 19-Nov-2022, Manuscript No: jpch-22-82278(R), **Published:** 28-Nov-2022, DOI: 10.4172/2376-127X.1000561

Citation: Khan F (2022) Pregnancy Problems and Subsequent Vascular Ultrasonography Measurements. J Preg Child Health 9: 561.

of more frequent difficulties like low birth weight and premature delivery. Studies with both pre-pregnancy and post-pregnancy data have also been found to fill a gap. After pregnancy, we predicted that lower FMD, IMT, and carotid artery distensibility would be linked to pregnancy problems [6].

Source Population

The procedures used for the Cardiovascular Risk in Young Finns study have already been thoroughly explained. In 1980, 3596 youngsters were enlisted, picked at random from population registries, ranging in age from 3 to 18 years old, with 1832 of them being female. Between 1980 and 1992, follow-up evaluations were carried out every three years; from 2001 to 2007. For clinical tests, retention rates for women were 81% in 1983, 72% in 1986, 68% in 2001, and 66% in 2007 [7, 8].

Discussion

Our analysis suggested a few potential connections between vascular parameters and pregnancy complications. The data were most consistent with the idea that this increased risk was present before the pregnancy. Giving birth to a low birthweight baby was associated with increased IMT. To our knowledge, no one has examined this precise question, although a person's own birthweight has been associated with adult IMT [9].

Conclusion

Our aim was to investigate the aetiology of placental vascularization in the second and third trimesters. We discovered that 3-DPD indices may be helpful in the early detection of PE to prevent the most common foetal complications, allowing us to choose a management and monitoring strategy [10].

Acknowledgement

None

Conflict of Interest

None

References

1. Betsch M (2015) Spinal posture and pelvic position during pregnancy: a prospective rasterstereographic pilot study. Eur Spine J 24: 1282-1288.
2. Zhang Y (2015) Characteristics of the centre of pressure progression for pregnant women during walking. Int J Biomed Eng Tech 17: 387-397.
3. Takeda K, Shimizu K, Imura M (2015) Changes in balance strategy in the third trimester. J Phys Ther Sci 27: 1813-1817.
4. Branco M (2016) Kinetic Analysis of Gait in the Second and Third Trimesters of Pregnancy. J Mech Med Biol 16: 1650055.
5. Sunaga Y (2016) Estimation of inertial parameters of the lower trunk in pregnant Japanese women: A longitudinal comparative study and application to motion analysis. Appl Ergon 55: 173-182.
6. Forczek W (2019) Does the first trimester of pregnancy induce alterations in the walking pattern? PLoS ONE 14: e0209766
7. Bey ME (2019) Vastus Lateralis Architecture Changes During Pregnancy, A Longitudinal Study. Front Physiol 10.
8. Visser M (2005) Muscle Mass, Muscle Strength, and Muscle Fat Infiltration as Predictors of Incident Mobility Limitations in Well-Functioning Older Persons. J Gerontol A Biol Sci Med Sci 60: 324-333.
9. NIH (2020) Quality Assessment Tool for Observation-al Cohort and Cross-Sectional Studies. National Heart, Lung, and Blood Institute.
10. Ma LL, Wang YY, Yang ZH, Huang D, Weng H, et al. (2020) Methodological quality (risk of bias) assessment tools for primary and secondary medical studies: what are they and which is better?