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Opinion Article

Cardiovascular Health Surveillance Following Preeclampsia: Pathophysiology and Therapeutic Approaches

Shulman Witchel*

Department of Obstetrics Gynecology and Newborn Health, University of Melbourne, Melbourne, Australia

DESCRIPTION

Maternal Preeclampsia can have extreme psychosocial impacts on women, influencing their mental health and quality of life. Anxiety, depression and Post-Traumatic Stress Disorder (PTSD) are not uncommon following a preeclampsia-affected pregnancy. These psychosocial factors can adversely affect cardiovascular health by contributing to unhealthy behaviors such as poor diet, physical inactivity and smoking. Integrating mental health support into post-preeclampsia care is vital. Psychological counseling, stress management techniques and support groups can help women cope with the emotional aftermath of preeclampsia and adopt healthier lifestyles. Healthcare systems play a critical role in managing the long-term cardiovascular health of women with prior preeclampsia. Developing standardized guidelines for cardiovascular surveillance and management can ensure consistent and comprehensive care. Collaboration between obstetricians, cardiologists and primary care providers is essential for delivering coordinated care. Additionally, healthcare systems should invest in education and training programs to raise awareness among healthcare providers about the long-term risks associated with preeclampsia and the importance of ongoing cardiovascular surveillance. Advocacy efforts are needed to prioritize cardiovascular health surveillance for women with a history of preeclampsia. Policymakers should support initiatives that improve access to healthcare, promote research funding and ensure that healthcare providers have the resources needed to deliver high-quality care. Public health campaigns can raise awareness about the long-term risks of preeclampsia and encourage women to seek regular cardiovascular assessments.

Empowering women with knowledge about the long-term cardiovascular risks associated with preeclampsia and the importance of ongoing health surveillance is vital. Healthcare providers should offer comprehensive education and support to encourage adherence to preventive measures and follow-up care. Hormonal changes during and after pregnancy can influence cardiovascular health. Monitoring and addressing hormonal imbalances, such as thyroid dysfunction, may be necessary for optimizing cardiovascular outcomes. Given the role of oxidative stress and inflammation in preeclampsia, therapies targeting these pathways may be beneficial. Antioxidant supplements, such as vitamins C and E and anti-inflammatory agents are being explored for their potential to improve endothelial function and reduce cardiovascular risk. Adopting a heart-healthy lifestyle is fundamental for reducing cardiovascular risk. Women should be encouraged to maintain a balanced diet rich in fruits, vegetables, whole grains and lean proteins. Regular physical activity, smoking cessation and stress management are also important components of cardiovascular health. Advanced imaging methods such as Carotid Intima-Media Thickness (CIMT) measurement and Coronary Artery Calcium (CAC) can detect early signs of atherosclerosis and vascular changes. These non-invasive techniques are valuable for assessing cardiovascular health and guiding preventive strategies. Monitoring biomarkers associated with endothelial dysfunction, inflammation and oxidative stress can provide additional insights into cardiovascular risk. The balance between pro-angiogenic and anti-angiogenic factors is disrupted in preeclampsia. Elevated levels of Soluble Fms-Like Tyrosine Kinase-1 (sFlt-1) inhibit Vascular Endothelial Growth Factor (VEGF) and Placental Growth Factor (PlGF), impairing angiogenesis. This imbalance affects vascular repair and regeneration, increasing susceptibility to cardiovascular diseases. Preeclampsia is associated with elevated levels of Reactive Oxygen Species (ROS) and pro-inflammatory cytokines, which damage endothelial cells and promote vascular inflammation. This oxidative stress and inflammatory state contribute to long-term cardiovascular risk by accelerating the process of atherosclerosis.

CONCLUSION

Endothelial dysfunction persists postpartum, increasing the risk of developing chronic hypertension and other cardiovascular diseases. Research on preeclampsia and its long-term cardiovascular implications is ongoing. Future studies should

Correspondence to: Shulman Witchel, Department of Obstetrics Gynecology and Newborn Health, University of Melbourne, Melbourne, Australia, E-mail: witch@bour.com

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focus on identifying novel biomarkers and genetic factors that predict cardiovascular risk. Exploring the role of lifestyle interventions and pharmacological therapies in reducing long-term risk is also important. Large-scale longitudinal studies can provide valuable insights into the natural history of cardiovascular diseases in women with a history of preeclampsia and inform the development of targeted prevention and treatment strategies.