CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187

https://doi.org/10.5281/zenodo.7311424

Available online at: http://www.iajps.com *Review Article*

INTRA UTRINE GROWTH RETARDATION AND PRE-ECLAMPSIA: A REVIEW

Jawad Ahmad Wasif, Hira Abdur Rehman Qureshi*, Hafa Tufail*, Saira Kainat Awan, Zahra Ahmad*****

Dept. of Paediatrics-Our Lady of Lourdes Hospital Drogheda-Ireland, *Dept. of OBS/GYN- Our Lady of Lourdes Hospital Drogheda-Ireland, **Advance Neurology-NYC, ***Medical Officer, Dept. of Cardiology-PIC

Article Received: September 2022 **Accepted:** September 2022 **Published: October** 2022

Abstract:

Placental examination in pregnancies with complications such as pre-eclampsia (PE) or intrauterine growth restriction (IUGR) can provide insight into specific diagnoses, recurrence risk and chronicity. Placental findings have clinical significance as they can identify the aetiology of the IUGR (as in inborn errors of metabolism) and predict recurrence (as in maternal floor infarcts). Evaluation of obstetric pathology in such pregnancies should be an integral part of clinical care. This review will highlight the placental findings in IUGR and PT.

Keywords: *IUGR; Clinical Care; Pre-eclampsia*

Corresponding author:

Jawad Ahmad Wasif,

Dept. of Paediatrics-Our Lady of Lourdes Hospital Drogheda-Ireland

QR code

Please cite this article in Jawad Ahmad Wasif et al ***Intra Utrine Growth Retardation And Pre-Eclampsia: A Review.,*** *Indo Am. J. P. Sci, 2022; 09(10).*

INTRODUCTION:

Pre-eclampsia is a pregnancy complication affecting approximately 5–8% of pregnant women and is capable of causing both maternal and fetal morbidity and mortality. Maternal death rates from pre-eclampsia have been significantly reduced by careful patient management in the developed world. However, significant maternal death from hypertension still occurs in developing countries, which account for 99% (533 000) of total annual global maternal deaths [1-2]. Pre-eclampsia is characterized by gestational hypertension, proteinuria, systemic endothelial cell activation and an exaggerated inflammatory response. Whilst the pathophysiology of pre-eclampsia is not completely understood, it is clear that the presence of the placenta is both necessary and sufficient to cause the disorder, and the delivery of the baby (and thus the removal of the placenta) remains the only current cure. The pathophysiology of pre-eclampsia involves a complicated web of interacting maternal and fetal factors. Slowly we are gaining an understanding of how these factors may fit together to result in the range of clinical presentations of pre-eclampsia, and it is becoming clear that the aetiology of early-onset and late-onset pre-eclampsia, as well as intra-uterine growth restriction (IUGR) may arise from overlapping but distinct underlying causes [3-4]

The aim of this review is to summarize the current findings in the field and address the important contributions of PE to IUGR. Lastly the management is discussed.

REVIEW:

Pre-eclampsia & Cardiac Disease: Metabolic Syndrome of Pregnancy?

Complications of pregnancy, particularly pre-eclampsia (PE) and intra-uterine growth restriction (IUGR) have been associated with future maternal cardiovascular disease (CVD). Pre-eclampsia, characterised by insulin resistance, widespread endothelial damage and dysfunction, coagulation defects and increased systemic inflammatory response, shares many risk factors with CVD. Studies have conclude that despite the low immediate cardiovascular risk in a population of young women, a pregnancy with multiple complications including PE, premature delivery and IUGR, carries a seven-fold additive risk of future disease. These women may be an appropriate cohort for CVD risk screening and for possible intervention. [5-6]

PE & Mortality/Morbidity

Pre-eclampsia is a major cause of maternal mortality (15–20% in developed countries) and morbidities (acute and long-term), perinatal deaths, preterm birth, and intrauterine growth restriction. [7] Key findings support a causal or pathogenetic model of superficial placentation driven by immune maladaptation, with subsequently reduced concentrations of angiogenic growth factors and increased placental debris in the maternal circulation resulting in a (mainly hypertensive) maternal inflammatory response. The final phenotype, maternal pre-eclamptic syndrome, is further modulated by pre-existing maternal cardiovascular or metabolic fitness.

Diagnosis & Management

Currently, women at risk are identified on the basis of epidemiological and clinical risk factors, but the diagnostic criteria of pre-eclampsia remain unclear, with no known biomarkers. Treatment is still prenatal care, timely diagnosis, proper management, and timely delivery. Many interventions to lengthen pregnancy (eg, treatment for mild hypertension, plasma-volume expansion, and corticosteroid use) have a poor evidence base. [8-9]

Preeclampsia predisposes women in later life to cardiovascular diseases. So far, in acute cases of preeclampsia stabilization of the mother and foetus and finally termination of pregnancy at a time optimal for both sides can only be considered. [10] In this work, available literature data concerning the causes of preeclampsia, its symptoms, techniques for diagnosis, methods for prevention and new approaches to treatment needs further validation and warrants Cochrane Reviews to be initiated.

Great Obstetrical Syndrome

PE and IUGR are common complications of pregnancy with potentially very severe consequences for the health of the mother and foetus. [11] Together with preterm birth, preterm pre labour rupture of membranes and placenta abruption they belong to the "Great Obstetrical Syndromes" with defective placentation and incomplete remodelling of spiral arteries [12]. This background to preeclampsia and IUGR is well established and generally accepted, even if, during the recent years, some new evidence has been presented suggesting that in the development of early-onset and late-onset preeclampsia and/or IUGR different pathogeneses might be involved [13-14]

CONCLUSION:

PE continue to be major contributor to IUGR. In this brief review, we highlight current findings in the field and address the important contributions of PE to IUGR. Efforts to preserve daily functioning abilities and quality of life should be the driving aim of PE

management. Clinicians must be aware that prompt and correct diagnosis with careful management are essential for recovery and to prevent IUGR.

REFERENCES:

1. Say L, Inoue M, Mills S, Suzuki E. Maternal Mortality in 2005. World Health Organization: Geneva, 2005.
2. Prual A, Bouvier-Colle M, de Bernis L, Breart G. Severe maternal morbidity from direct obstetric causes in West Africa: incidence and case fatality rates. Bull WHO 2000; 78: 593–602.
3. Roberts J, Hubel C. The two stage model of preeclampsia: variations on the theme. Placenta 2009; 30: S32–37
4. Burton G, Yung H, Cindrova-Davies T, Charnock-Jones D. Placental endoplasmic reticulum stress and oxidative stress in the pathopysiology of unexplained intrauterine growth restriction and early onset preeclampsia. Placenta 2009; 30: S43–48
5. Rodie VA, Freeman DJ, Sattar N, Greer IA. Pre-eclampsia and cardiovascular disease: metabolic syndrome of pregnancy?. Atherosclerosis. 2004 Aug 1;175(2):189-202.
6. Roberts DJ, Post MD. The placenta in pre-eclampsia and intrauterine growth restriction. Journal of clinical pathology. 2008 Dec 1;61(12):1254-60.
7. Cnossen JS, Morris RK, Ter Riet G, Mol BW, Van Der Post JA, Coomarasamy A, Zwinderman AH, Robson SC, Bindels PJ, Kleijnen J, Khan KS. Use of uterine artery Doppler ultrasonography to predict pre-eclampsia and intrauterine growth restriction: a systematic review and bivariable meta-analysis. Cmaj. 2008 Mar 11;178(6):701-11.
8. James JL, Whitley GS, Cartwright JE. Pre-eclampsia: fitting together the placental, immune and cardiovascular pieces. The Journal of pathology. 2010 Aug;221(4):363-78.
9. Sibai B, Dekker G, Kupferminc M. Pre-eclampsia. The Lancet. 2005 Feb 26;365(9461):785-99.
10. Filipek A, Jurewicz E. Preeklampsja – choroba kobiet w ciąży [Preeclampsia - a disease of pregnant women]. Postepy Biochem. 2018 Dec 29;64(4):232-229. Polish. doi: 10.18388/pb.2018_146. PMID: 30656917.
11. Maršál K. Preeclampsia and intrauterine growth restriction: placental disorders still not fully understood. J Perinat Med. 2017 Oct 26;45(7):775-777. doi: 10.1515/jpm-2017-0272. PMID: 28985185.
12. Brosens I, Pijnenborg R, Vercruysse L, Romero R. The "Great Obstetrical Syndromes" are associated with disorders of deep placentation. Am J Obstet Gynecol. 2011;204:193–201
13. Thilaganathan B. Placental syndromes: getting to the heart of the matter. Ultrasound Obstet Gynecol. 2017;49:7–9.
14. Figueras F, Gratacos E. Update on the diagnosis and classification of fetal growth restriction and proposal of a stage-based management protocol. Fetal Diagn Ther. 2014;36:86–98