



Opinion

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Preeclampsia: Effect on Fetal Programming, Consequent Adulthood and Future Maternal Health- an Approach



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Opinion

There is increasing evidence that the health indexes presented by an individual at any given time are strongly influenced by the course of their life up to then. In fact, experiences during pregnancy, ie. preeclampsia, also have long-term influences, harshly interfering with current maternal and fetal health and consequent adulthood. Considering the various effects that pregnancy can cause in the maternal organism, it is possible that different obstetric histories are associated with different health indexes presented by women later in life [1,2].

We evaluated as health index-the HRV signal, considered a consequence of many factors, namely respiratory rhythms, blood pressure, and subjective factors. The signal of variability of the frequency cardiac is considered to be originated by a system of discreet pulse. The analysis presented a sensitivity for preeclampsia around 80% that increases for hypertensive and normal pregnancy groups and a specificity around 85-90%. The results indicate that the combination of HRV indexes with artificial neural network (ANN) could be helpful for pregnancy study and characterization. To go deeper we performed a comparative analysis of blood pressure and heart rate variability complexity during pregnancy between normal, hypertensive, and preeclamptic women and identified significant differences between pathological and normal states with important considerations related to pregnancy adaptability and evolution as well as the relationship of complexity and blood pressure with factors such as maternal age, familial history of diabetes or hypertension, and parity [3,4].

Our theory was strengthened by exploitation the correlations between heart rate variability indexes and some biochemical markers during the third trimester of normal, hypertensive, and preeclamptic pregnancies. We found that complexity indexes are correlated with some variables, positively with hemoglobin concentration in the pathologic group and uric acid blood levels

whereas low frequency (LF) was negatively correlated with uric acid and creatinine concentration as well as positively correlated with platelet levels. The LF was the only spectral region with significant correlation. Through an independent analysis of groups, only significant correlations were found in normal and preeclamptic groups between LF and uric acid concentration and in normal and hypertensive groups for LF and creatinine blood levels [5].

Further studies need to be performed to create a model that precisely distinguish between normal and preeclamptic women to analyse the influence of certain drugs in the heart rate in order to propose or to identify some explanations for biochemical data for describe with all safety the prognostic value of the HRV in the prediction of preeclampsia, in order to control fetal programming, consequent adulthood and future maternal health.

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References

1. BarkerJP (1990) The fetal and infant origins of adult disease. *BMJ* 301:1111.
2. Sattar N, Greer, IA (2002) Pregnancy complications and maternal cardiovascular risk: opportunities for intervention and screening? *BMJ*325(7356): 157-160.
3. Tejera E, Areias MJ, Rodrigues AI, Nieto-Villar JM, Rebelo I, et al. (2012) Blood pressure and heart rate variability complexity analysis in pregnant women with hypertension. *Hypertens Pregnancy* 31(1): 91-106.
4. Tejera E, Areias MJ, Rodrigues AI, Ramõa A, Nieto-Villar JM, et al. (2012) Relationship between heart rate variability indexes and common biochemical markers in normal and hypertensive third trimester pregnancy. *Hypertens Pregnancy* 31(1): 59-69.

5. Tejera E, Areias MJ, Rodrigues A, Ramõa A, Nieto-Villar JM, et al. (2011) Artificial neural network for normal, hypertensive, and preeclamptic

pregnancy classification using maternal heart rate variability indexes. *Matern Fetal Neonatal Med* 24(9): 1147-1151.



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