Rev. Fac. Med. Hum. Abril 2020;20(2):339-340.
DOI 10.25176/RFMH.v20i2.2921
LETTERS TO THE EDITOR
ISSN Online Version: 2308-0531
Faculty of Human Medicine URP

FETAL PROGRAMMIG, INTRAUTERINE TOXIC STRESS AND CONSEQUENCES ON THE PRODUCT

PROGRAMACIÓN FETAL, ESTRÉS TOXICO INTRAUTERINO Y CONSECUENCIAS EN EL PRODUCTO

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LETTERS TO THE EDITOR

Mr. Editor

Two decades ago Baker gave the concept of Fetal Programming (PF), where he associated the prenatal environment and the development of fetus[1]. Consequently, the PF would represent "the induction of fetal responses due to the uterine environment" that will condition functional and structural changes in the fetus itself, with short and long term repercussions[2]. Consequently, if the prenatal environment is adverse in development, we will possibly have pathologies in extrauterine life[1].

The evidence indicates that processes involved in the development of various functions of complex organic systems would begin long before birth and would shape future health problems[2].

The FP seems to intervene in genetic and epigenetic factors of the product, there are several noxes that would generate toxic stress (infections, inflammation, mother's mood, hypoxia, hyperglycemia, hypothyroidism, alcohol, drugs, tobacco, drugs, etc.). These noxes would be acting directly and indirectly, both molecularly and cellularly, they alter not only neurological development but also increase the risk of mental illness, metabolic diseases, and immune system involvement[5].

There are three different types of the stress response: positive, tolerable and toxic. In this case, a very important noxa that would have an impact on PF would be toxic stress, which represents a very important event, product of an intense, frequent and prolonged response to stress adaptation[3].

There are many theories raised to trigger this stress such as increased levels of glucocorticoids, nitric oxide, serotonin, etc. Citing only cortisol, the increase in this in the mother, causes the placenta to produce downregulation of the 11B hydroxysteroid dehydrogenase type II enzyme, responsible for converting cortisol into inactive cortisone[4]. Having as an outcome that cortisol passes into the fetal circulation with due consequences5. This will be evidenced by alterations in the homeostasis of the fetus from the increased risk of spontaneous abortions, lower birth weight, and premature delivery and even to deregulation of the Hypothalamus axis Adrenal Pituitary of the fetus[1].

The magnitude of these effects would have an impact on the health of the mother, the product and the population since the risk of developing behavioral problems is doubled in the children of mothers exposed to toxic stress[4]. This could explain 17% of the variation in language skills, present lower cognitive development, increased risk of autism, mental illness, anxiety disorders, physical illness, cardiovascular disease, diabetes, vascular strokes, cancer, asthma and autoimmune diseases[3].

Because there is little information on FP, it is recommended to promote their research within the perinatal maternal priority line, since many pregnant women in Peru live under high levels of toxic stress. It would be convenient to search if there is an association in our population, as described in other countries so that public health policies can be developed for prevention, dissemination, and treatment.

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Cite as: Silva-López M., Hernandez-Patiño I. Fetal programmig, intrauterine toxic stress and consequences on the product. Rev. Fac. Med. Hum. April 2020; 20(2):339-340. DOI 10.25176/RFMH.v20i2.2921

Journal home page: http://revistas.urp.edu.pe/index.php/RFMH

Authorship contributions: The authors participated in the generation, collection of information, writing and final version of the original article.

Financing: Self-financed.

Conflict of interest: The authors declare that they have no conflicts of interest in the publication of this article.

Received: March 9, 2020

Approved: March 27, 2020

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