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Editorial

Maternal Age During Pregnancy: How Important is It?

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Just recently we have shown higher predisposition of women to anemias during the whole fertile period [1]. What more can complicate pregnancy in age-related mode? We suppose that from 4 decades roughly coinciding with fertile period (10-49 y), two of them are especially problematic: the first, adolescent and the last, premenopausal one. Let's discuss now why it may happen.

If to consider the age of complete termination of body growth, it appears to be close to 20 y. It means that adolescent body still continues to grow, although much more slowly with each year of age after pubertal growth spurt. In addition, uterine hydration state and growth largely depend on estrogen levels, as our data clearly show on experimental models of laboratory animals [2,3]. Therefore, we may suggest that human uterine size will attain adult values more closely to the age of 20 y also.

On the other hand, in DOHaD concept [4] it is already well known that subdeveloped uterus can restrict fetal growth, thus paving the way to lower birthweight, with subsequent higher risk of cardiometabolic disorders in later life, till the senescence in offspring.

What for premenopausal decade, here another ontogenetic mechanism may complicate fertility: the changing threshold of gonadostat regulating reproductive endocrine axis to inhibitory action of estrogens [5]. As a result, with approximating menopause higher levels of gonadotropins may occur, trying to maintain estrogen production in the ovaries.

In any case, maternal age may be considered as important risk fator for several problems in pregnancy, with essential consequences for offspring. It means that optimal fertile decades of maternal age for pregnancy and delivering offspring are intermediate, i.e. 20-39 y.

Unfortunately, it is less clear yet what is the role of prolactin in the peculiarities of maternal age. Earlier we have shown that aged female rats in our local colony possessed much higher prolactin content in anterior pituitary gland, according to colorimetric determination after electrophoresis in polyacrylamide gel (unpublished data). Therefore, at least in this species enhanced prolactin levels can largely interfere with gonadotropin secretion and/or action. However, laboratory rats appear to demonstrate higher risk to prolactin-producing adenohypophyseal tumors with advanced age, what may not be the case in humans. Nevertheless, considering the possibility of lower dopamine as principal prolactostatin in aging hypothalamus, higher attention should be attracted to bioregulation of prolactin secretion in women of advanced age.

Previously we have demonstrated together with German researchers that at least one of synthetic steroid hormone analogues could interact with dopaminergic agonist bromocriptine in the inhibition of prolactin secretion, as well as DNA and total protein biosynthesis in primary cultures of adenohypophyseal cells of adult female rats [6]. These studies sould be continued, in order to obtain new pharmacologic tools of regulating prolactin secretion and pituitary growth in aging females.

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