Editorial / Уводник

Nedeljko Radlović†

Intrauterine growth restriction: Causes and consequences
Узроци и последице интраутериног умањеног раста

Academy of Medical Sciences of the Serbian Medical Society, Belgrade Serbia

Received: July 10, 2017
Accepted: July 12, 2017
Online First: July 14, 2017
DOI: https://doi.org/10.2298/SARH170710145R

*Accepted papers are articles in press that have gone through due peer review process and have been accepted for publication by the Editorial Board of the Serbian Archives of Medicine. They have not yet been copy edited and/or formatted in the publication house style, and the text may be changed before the final publication. Although accepted papers do not yet have all the accompanying bibliographic details available, they can already be cited using the year of online publication and the DOI, as follows: the author’s last name and initial of the first name, article title, journal title, online first publication month and year, and the DOI; e.g.: Petrović P, Jovanović J. The title of the article. Srp Arh Celok Lek. Online First, February 2017.

When the final article is assigned to volumes/issues of the journal, the Article in Press version will be removed and the final version will appear in the associated published volumes/issues of the journal. The date the article was made available online first will be carried over.

†Correspondence to:
Prof. Nedeljko RADLOVIĆ
Academy of Medical Sciences of the Serbian Medical Society,
19 Džordža Vašingtona Street, 11000 Belgrade, Serbia
Intrauterine growth restriction: Causes and consequences
Узроци и последице интраутериног умањеног раста

The prenatal period of growth and development represents a very delicate phase of life exposed to a numerous of probably negative effects. One of them is an intrauterine growth restriction (IUGR), also known as fetal growth restriction, i.e. birth with body weight below 10th percentile in relation to the corresponding gestational age and sex [1]. The importance of adequate prenatal nutrition and according to this optimal early development program was first pointed out by the English epidemiologist David Barker, less than three decades ago [2]. Namely, he noted the high association of IUGR with the occurrence of abdominal (visceral) obesity and metabolic syndrome in adulthood, i.e. insulin resistance, type II diabetes mellitus, and atherosclerosis and its consequences. Subsequently, only the confirmation of the "Barker hypothesis" in the narrow sense was followed by numerous evidence regarding the extremely high importance of early development programming and other aspects of human health [3-7]. The consequences of IUGR, as well as numerous other negative phenomena, are based on specific epigenetic mechanisms, such as DNA methylation, histone modification, and others, which by modifying gene expression result in a less functionally valuable and vulnerable phenotype [3, 6].

According to literature data, IUGR globally occurs with a prevalence of 3-10% [8]. The causes of this pathological phenomenon are numerous, such as placental abruption or abnormal insertion, maternal undernutrition, cigarette smoking, arterial hypertension, renal disease, anti-phospholipid syndrome, vitamin D deficiency and drug abuse, then fetal chromosomal/structural anomalies or chronic intrauterine infection, and others [9-13].

In addition to the negative effects that occur in the adult age, IUGR complicates more frequent early postnatal problems such as asphyxia, hypothermia, hypoglycaemia, polycythaemia, and many more when compared to their corresponding for gestational age counterpart [5, 6, 8, 14]. Also, children who are born small for gestational age (SGA) have a predisposition to accumulation of fat mass, especially intra-abdominal [8]. Therefore, rapid weight gain during infancy of these children represents an additional risk factor for the occurrence of metabolic syndrome and its negative consequences in adult age [8].

The above facts point to the importance of IUGR as a worldwide health problem [8]. Although there are conditions where the IUGR is an inevitable phenomenon, in many cases it can be prevented [6]. Although due to catch-up growth, most of the infants born of SGA at the age of 2 years reach their peers in longitudinal growth, about 10% of them continue to fall below the 3rd percentile of height into adulthood [8]. In order to eliminate additional risk factors for the subsequent occurrence of metabolic syndrome, it is important to point out that the nutrition of these infants must be focused on the prevention of obesity according to which they are strongly predisposed [6, 8].
The papers published in this issue of the Serbian Archives of Medicine deal with exclusively latest knowledge and make a significant contribution to clarifying these disorders, their early detection and treatment [15-19].

REFERENCES: