THE INFLUENCE OF ENVIRONMENTAL AND BIOLOGICAL FACTORS ON THE BIRTH OF CHILDREN WITH CONGENITAL DEFECTS

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Abstract

This topic studies the influence of environmental and biological factors on the birth of children with birth defects. Birth defects are anatomical or functional disorders that occur during fetal development, which can be formed under the influence of hereditary (genetic) and environmental factors. Biological factors include hereditary diseases of parents, genetic mutations, infectious diseases and hormonal changes during pregnancy. Environmental factors include harmful chemicals, radiation, malnutrition, uncontrolled intake of drugs and environmental pollution.

Keywords: birth defects, biological factors, environmental factors, genetic mutation, hereditary diseases, fetal development, prenatal period, environmental pollution, teratogenic factors, prevention.

Birth defects are complex pathological conditions that occur during the formation of the human body during the fetal period. They manifest as various anatomical, physiological, or functional abnormalities that are present from birth or early in life. Congenital defects can range from mild to severe, and in some cases, have a significant impact on the quality and duration of a child's life.

According to the World Health Organization, millions of children are born with various birth defects every year around the world, which makes this problem one of the urgent issues of the global health system.

Medical observations and scientific studies conducted in recent years show that the decrease or increase in birth defects is directly related to the quality of medical care, the preventive system, the health of pregnant women and social factors in society. According to some data, as a result of reforms implemented in the field of maternal and child health in the republic in recent decades, maternal and infant mortality has significantly decreased, and a downward trend has also been observed in the number of births with birth defects. This indicates the effectiveness of screening programs, early diagnosis and preventive measures.

The causes of birth defects are complex and multifactorial, and they usually interact with each other. In medicine, these factors are mainly divided into

biological (hereditary and genetic) and environmental factors. Both groups affect the normal development of the fetus to varying degrees and sometimes together cause the formation of defects.

Biological factors play a key role in the development of birth defects.

Chromosomes, which are present in every cell of the human body, are the main structure that stores hereditary information. Any change in these chromosomes, that is, a violation of the number or structure, negatively affects the normal development of the fetus. In particular, some chromosomal anomalies can lead to severe birth defects such as Down syndrome and Edwards syndrome. In such cases, not only the physical, but also the mental development of the child lags significantly behind.

Genetic mutations are also one of the important causes of birth defects. As a result of changes in the structure of genes, the normal development of the organism is disrupted, and this condition can be passed from generation to generation. If the parents have hidden genetic diseases, the likelihood of their manifestation in their children increases. Therefore, genetic counseling and prenatal diagnostics are becoming increasingly important in medicine today.

The age of the parents is also considered one of the biological risk factors. In particular, as the mother's age increases during pregnancy, the likelihood of genetic errors in the egg increases. This significantly increases the risk of chromosomal abnormalities and birth defects. At the same time, pregnancy at a very young age is also dangerous because the body is not fully formed.

Infectious factors also play an important role in the development of the fetus.

When a pregnant woman is infected with various viral or bacterial diseases, these infections can be transmitted to the fetus through the placenta. Infections such as measles, toxoplasmosis, cytomegalovirus and herpes can cause heart defects in the fetus, vision and hearing impairments, and problems with the development of the central nervous system.

Environmental factors also play a major role in the formation of birth defects.

These factors are often related to a person's lifestyle and environmental conditions, and most of them are preventable. Harmful habits during pregnancy, namely the use of alcohol, tobacco products and drugs, are very dangerous for the fetus. Such substances disrupt the oxygen supply of the fetus, slow down brain development and negatively affect the formation of various organs.

Taking medications without a doctor's supervision also poses a serious risk.

Some drugs can have a toxic effect on the fetus and disrupt its development.

Therefore, pregnant women should take any medication only on the recommendation of a doctor.

The effects of radiation and chemicals are also an important factor in the development of birth defects. Ionizing radiation changes the structure of DNA and causes genetic mutations. Long-term contact with toxic chemicals also has a negative effect on fetal development.

The nutritional factor is also of great importance. A deficiency of vitamins and minerals in the body of a pregnant woman, especially folic acid deficiency, can lead to neural tube defects. Therefore, a proper and balanced diet during pregnancy is very important. Social and psychological factors also have a significant impact on fetal development. Constant stress, mental pressure, lack of sufficient rest and lack of medical control can disrupt the normal development of the fetus. Stress hormones also affect the fetus, slowing its physiological development.

Modern medicine pays great attention to the early detection and prevention of birth defects. Through prenatal screening, ultrasound examinations and genetic tests, many defects can be detected during fetal development. This allows for early intervention and prevention of some serious conditions.

Uzbekistan is also implementing large-scale reforms in the field of maternal and child health. As a result of the introduction of prenatal screening programs, improved medical infrastructure and increased training of specialists, there is a trend towards a decrease in the number of births with birth defects.

Conclusion

Congenital defects are a complex biological and social problem, and several factors contribute to their occurrence. Although genetic causes may play a major role, environmental and lifestyle factors also play a significant role. Therefore, the most important way to prevent birth defects is a healthy lifestyle, early medical check-ups, proper nutrition, and proper pregnancy planning. Since the future of every healthy society is associated with a healthy generation, preventive measures in this direction will always be a priority.

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