XENOBIOTICS AND THIER PART IN ETHIOPATHOGENESIS OF SOME DISEASES IN CHILD´S AGE

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Abstract*: When evaluation of human diet, emphasis is placed in general on its energetic and biological quality. Of recent years scientists are interested in diet from a viewpoint of its possible contamination with xenobiotics. Special attention is paid mainly to the quality of diet in child´s age. In the article, authors mention some health effects of food intake of toxic substances with emphasis on mycotoxins, at particular period stages.*

Keywords*: xenobiotics, child´s age, nutrition*

Introduction

Diet significantly influences health of an individual from the first days of his life as well as in later stages. It influences prevention or genesis of acute and chronic diseases. Numerous studies concerning the effects of environmental toxic substances on human organism have augmented at present.

In human organism, majority of xenobiotics are metabolized and ineffective products of detoxication as well as more toxic substances with mutagenic, carcinogenic, nephrogenic, immunotoxic activity are formed.

Absorption, distribution, metabolism and excretion of xenobiotics in child organism are unlike those in the adults. The crucial agent of their different effects is also the difference in receptor sensitivity, maturation of tissue, gastrointestinal motility, immaturity of biotransformation processes, intestine microbiota and diaphragmal permeability, renal excretion, glomerular filtration, tubular resorption too. In addition, considering body weight, children take up more food than the adults. Therefore reactions can differ not only in the way of action but in intensity as well.

Immune system and xenobiotics

The main result of negative xenobiotic effect on the immune system is disturbance of optimal immunal reactivity of an organism. Metals, organic solvents and essential oil are supposed above all to be related to genesis of human autoimmune diseases.

As to the environmental harmful substances, mycotoxins, polychlorinated biphenyls, pesticide, lead and cadmium have considerable immunosupresive effect.

Hormonal system is responsible for the functions of vital importance, disturbance of that can lead up to serious damage of organs.

Xenohormones, known as the endocrine disrupters, form a great deal of the xenobiotic spectrum. They are mainly pesticides, chlorinated hydrocarbons, phtalates, particularly persistent organic pollutants and other numerous organic compounds.

Xenohormones evocate disruption of the hormonal system close associated to the immune and nervous systems.

Also the state of intestine microbiota is of considerable importance for the right activity of the mucous immune system. Increased quantity of harmful substances in food can have an effect on the composition of intestine microbiota thereby can adversely affect the bowel epithelial barrier and the immune system of the intestinal mucosa that is matter of great importance to ethiopathogenesis of chronic inflammatory bowel disease on the autoimmune basis. Celiac disease, Crohn´s disease, ulcerative colitis.

Genetic predisposition and environmental agents contribute to the cascade of immunopathologic reactions leading up to the harm to intestinal mucosa.

Food antigens, bacterial products, toxins and environmental harmful substances are predisposing agents in harm to bowel permeability and thereby can lead to development of the allergic and autoimmune diseases.

Conclusion

Health of grown-up child depends on the right diet. Biological valuable diet shall have nutrients with adequate quantity, quality, proportionality, with minimum content of contaminating substances, xenobiotics.

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XENOBIOTIKÁ A ICH PODIEĽ NA ETIOPATOGENÉZE NIEKTORÝCH OCHORENÍ V DETSKOM VEKU

Súhrn: Pri hodnotení výživy človeka sa vo všeobecnosti kladie dôraz predovšetkým na jej energetickú a biologickú hodnotu. V posledných rokoch sa vedci zaujímajú o výživu aj z aspektu možnej kontaminácie xenobiotikami. Mimoriadna pozornosť sa venuje predovšetkým kvalite výživy v detskom veku. V príspevku autori uvádzajú niektoré zdravotné dôsledky prívodu toxických látok potravou v jeho jednotlivých vekových obdobiach, s dôrazom na mykotoxíny.

Kľúčové slová: xenobiotiká, detský vek, výživa