

## STUDYING OF INFLUENCE OF ECOLOGICAL TENSION OF GEOANTHROPOGENIC ZONES ON DISEASES OF THE LIVING POPULATION VARIOUS STAGES OF AN OLD AGE

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**Abstract:** *In work questions of the studying of influence of factors of the environment on incidence of the population living in various geoanthropogenic zones, being at various stages of an old age are considered. The relevance of identification of the indicator regularities allowing to exercise micro control of risk factors for increase in a socially important task – extension of life is emphasized. Incidence shares in various regions, characteristic of various stages of an old age, on the example of Kursk region of the Russian Federation are given.*

**Keywords:** old age stages, incidence, geoanthropogenic zones, ecological tension.

The increase in life expectancy in the post-industrial countries caused by the improvement of quality of medical care of the population and cyclic natural processes held by environmental protection global and regional measures to bigger differentiation of the diseases characteristic on various stages of "senile age". Allocate five stages of an old age – are presented in table 1.

Table 1 Stage of an old age and incidence of the population

Stage	Short characteristic	The dominating characteristic diseases it (is for the first time revealed)
PFA	the sparing mode with performance of former activity	Infectious and parasitic, diabetes, new growths, cardiovascular, endocrine system, skin disease
WT	Work termination	Diabetes, cardiovascular, diseases of blood and haematogenic bodies, mental, new growths
CPRH	Concern on partial restoration of the lost health	Cardiovascular, respiratory organs, mental, neurologic, endocrine
FIS	Focus of interest – survival	Cardiovascular, digestive organs, mental, neurologic
RELS	Circle of requirements – elementary life support	Cardiovascular, respiratory organs, digestive organs, mental, neurologic, bone and muscular

Brought a cluster state are presumably comparable to five various levels of functional conditions of an organism [1, 2].

As various conditions of an old age of the person define his provisions in society and predetermine attraction of various public resources for overcoming the negative, destructive consequences connected with interaction of "the aging individual" with surrounding society and the habitat, the solution of the problem of forecasting of dynamics of transition from one cluster of an old age to another, is a current problem of mankind.

As the habitat has certain borders and are formed by natural and anthropogenic factors, it is possible to speak about a certain specific landscape or a geoanthropogenic zone.

At the initial stage it is offered to solve a problem of allocation of correlation between various diseases in clusters of an old age and the habitat characterizing by indicators of ecological tension [3, 4] in certain geoanthropogenic zones - "sotsiotekhnichesky landscapes" (in Budanov V.G. terminology).

For example, in Kursk region of the Russian Federation, for example, 4 zones are allocated [3]: Central Area t (CA), Northwest Area (NWA), Southwest Area (SWA), East Area (EA).

The analysis of statistical information allowed to allocate the following zones of the increased incidence (in brackets are specified – incidence of elderly people and a zone of accommodation): diseases of skin and hypodermic cellulose (0,6, CA); diabetes (0,18, CA); new growths (including oncology) (0,46, CA, SWA); diseases of blood and haematogenic bodies (0,52, CA, NWA, SWA, EA); respiratory organs (0,45, CA, NWA, SWA, EA); cardiovascular (0,52, CA, NWA, SWA, EA); urinogenital system (0,15, CA, NWA, SWA ); digestive organs (0,63, NWA, EA); bone and muscular (0,8, NWA, SWA); infectious and parasitic diseases (0,2, NWA); diseases of endocrine system (0,23, NWA, SWA, EA); neurologic (0,36, SWA); diseases of connecting fabric (0,44, NWA).

The provided data allow to draw a conclusion on a certain specificity of a number of diseases in various geoanthropogenic zones. For assessment of influence of geoanthropogenic zones, it is offered to use the indicator variables including indicators of direct anthropogenic influence (in the form of levels of pollution of the habitat) and such as levels: mortality, birth rate and the congenital malformations (CM) in a certain territory (in zones).

The mathematical models [5] identified on indicator variables, allow to exercise micro control of various factors of anthropogenic influence, medical care and social, influencing dynamics of levels of specific diseases.

It will allow to increase the period of initial stages of an old age with the minimum negative consequences for the person in society that will lead to reduction of economic expenses of society, extension of terms of life and increase in a share of able-bodied population in general.

#### **Reference**

1. Anohin P.K. Ocherki po fiziologii funkcional'nyh sistem. Moskva: Medicina, 2005. 446 s.
2. Sudakov K.V., Kubichev I.A., Nikolaev A.B. Jevoljucija terminologii i shem funkcional'nyh sistem v nauchnoj shkole P. K. Anohina. Moskva: Evropejskie poligraficheskie sistemy, 2010. 240 s
3. Zabroda N.N., Artemenko M.V., Eliseev Ju.Ju. Vlijanie prirodnyh i antropogennyh faktorov na zaboлеваemost' v regione. Sistemnyj analiz i modelirovanie. Kursk: KGMU. 2006. 256 s.
4. Protasova V.V., Korenevskij N.A., Artemenko M.V., Smirnov V.S. Issledovanie vlijanija jekologicheskikh faktorov na dinamiku urovnej serdechno-sosudistoj zaboлеваemosti v gorode. /Vestnik Voronezhskogo gosudarstvennogo tehničeskogo universiteta. 2010. T. 6. № 1. str. 123-127
5. Artemenko M.V., Protasova V.V. Metody i sredstva modelirovanija vlijanija jekologicheskoj naprjazhennosti regiona na zdorov'e naselenija: monografija Kursk: KGTI, 2009. 225 s.