

MEDICAL CONSEQUENCES OF CHERNOBYL DISASTER IN UKRAINE**Andrei M.Serduk, Olga A.Bobylyova**

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Grushevsky str. No 7, Kiev 252021, Ukraine***ABSTRACT**

Some aspects of health deterioration in population of Ukraine affected after the Chernobyl accident are presented. The survived population division in groups, peculiarities of morbidity incidence and prevalence are described. The dynamics of some medical demography parameters are discussed concerning adults and paediatric population. The precise values of incidence and prevalence for the main classes of diseases are shown in comparison of 1995 - 1996 to 1987.

INTRODUCTION

The Chernobyl Nuclear Power Plant (NPP) accident in 1986 led to the severest radioecologic disaster in human history. As the result nearly 8 % of population of Ukraine were affected: 3.2 million people are resident now on contaminated territories, 350,000 participated in accident cleaning up, 130,000 are migrants from contaminated zone. Children born during post-accidental period from parents - accident survivors constitute the high radiation risk group. Separately are presented the mortality tendencies and values in affected population compared to the whole Ukraine.

The revealed health status disorders genesis reasons can be connected both to the unfavourable radioecological situation (as the result of thyroid irradiation, CACCP general overexposure and several years-long effecton of low radiation doses in population resident on contaminated soils) and unfavourable non-radiation origin factors effecton (life conditions deterioration, dietary shortenings, prolonged psycho-emotional strain).

DATA AND DISCUSSION

In Chernobyl disaster health consequences estimation the prior medical attention should be drawn to 700,000 of paediatric population in Kiev, Zhitomyr, Chernigiv, Volyn, Rivno, Vinnitsa, Cherkasy, Ivano-Frankivsk, Chernivtsy, Ternopyl provinces both with group of migrants with thyroid exposure to radiation. The 772 cases of thyroid cancer are registered among this population group, 782 children are recognised as disabled persons because of diseases related to Chernobyl disaster.

The Chernobyl accident consequences cleaning up participants (CACCP) represent the second group requiring prior medical attention. Today according to Expert Councils' conclusions, the "reason-consequence" interrelation between disease and Chernobyl disaster consequences is fixed in 61,000 persons. The total number of disabled persons is nearly 47,000 (data of January 1, 1997).

The number of ill persons increased significantly during 1995-1996 compared to 1987: for 278 % among CACCP, for 255.5 % among children born since 1986, for 59.2 % among the contaminated territories residents, for 37.1 % among the evacuated persons (migrants).

In persons - CACCP the nervous system diseases are present in 11.4 % of all newly registered cases (499.4 per 10,000), cardiovascular system pathology - in 11 % (430.4), digestive system diseases - in 10.3 % (280.9). The pathology prevalence in some nosologic groups among CACCP is rather exceeding the average values for Ukraine: for vegetative-vascular dystonye in 5.6 times (244.3 and 43.7 respectively), peptic ulcer - in 4.3 times (72.6 and 16.9 respectively), endocrine system diseases - in 3.2 times (133.4 and 41.6 respectively), blood and hemopoetic organs - in 2.1 times (27.3 and 12.8 respectively).

The hematologic pathology requires much more attention in CACCP. The myeloblastic syndrome is registered by Radiation Medicine Scientific Centre of Ukrainian Medical Sciences Academy in 1994 - 1996 more and more often among sick CACCP.

The leukaemia diagnosis was made in 90 persons (in 17 of them in 1996). The 500 persons fixed in State Register are considered as the high risk group because of hematologic stable biases.

In health status analysis among adults and adolescents affected after the Chernobyl NPP accident the general tendency is markable during 1987 - 1995 for total morbidity and nosologic morbidity annual growth. The integral morbidity value increased in 3.8 times and consisted 5204.8 per 10,000 of respective contingent in 1995.

The all diseases classes morbidity and pathology prevalence is registered since 1987. For some diseases classes the morbidity among adults and adolescents - Chernobyl accident survivors significantly exceeds the values of all the adult population: for blood and hemopoetic organs - in 2.4 times and consists 30.5 per 10,000 in survivors (12.6 for Ukraine); for endocrine system - in 1.7 times - 70.0 (41.6 for Ukraine); for digestive system the morbidity is higher with 39.8 % (313.9 and 24.5 respectively), for cardiovascular system - with 36.4 % (445.8 against 326.7 respectively).

The malignant morbidity increased more than in 2 times in 1996 compared to that in 1987. The thyroid malignancy in affected adults and adolescents is in 2.5 times more frequent than in 1989 (no registration slots were provided in statistical reports before that). That exceeds the average value for Ukraine with 43.9 % (0.59 and 0.41 per 10,000). The lymphatic and hemopoetic tissue malignant neoplasmas prevalence grew in 2.2 times since 1987 (6.7 per 10,000 for respective contingent in 1996 and 3.0 - in 1987).

The cardiovascular system diseases posses one of the leading ranks in morbidity structure - 9.6 % (531.1 per 10,000 survivors), the digestive system diseases - 9.3 % (516.9), nervous system - 8.8 % (487.3), bone - muscular system - 4.3 (239.1). The vegetative-vascular dystonye morbidity among the evacuated persons exceeds the average Ukraine value in 4.2 times (185.9 per 10,000 survivors); that of blood and hemopoetic organs - in 4.2 times (54.3); of endocrine system - in 3.4 times (141.2); of digestive system - 2.3 times, including peptic ulcer disease - in 3 times (50.1). The bone-muscular system and joining tissue diseases prevalence is in 1.7 times higher (1284.2), that of cardiovascular system - in 1.5 times higher (4666.0) than for Ukraine.

The blood and hemopoetic organs diseases are more frequently registered in contaminated territories residents than among the whole Ukraine - in 2.4 times (30.2 per 10,000 survivors), that of vegetative-vascular dystonye - in 1.6 times (68.5). For 31.8 % the exceed of cardiovascular pathology incidence is present (430.4), that of endocrine system - for 30/3 % (54.2), of digestive system - for 25.2 % (280.9), of bone-muscular system - for 7.7 % (333.0).

The children health status estimation indicates the diseases prevalence progredient growth since 1987 annually concerning all the diseases classes both with separate ones. If the pathology prevalence value in 1987 consisted 786.6 and the morbidity one - 455.4 per 1,000 children, in 1995 those values increases in 2.1 and 2.5 times respectively. At the same time the diseases prevalence and morbidity incidence decreased for the whole Ukraine: prevalence from 1571.8 in 1988 to 135.8 in 1995 (declination for 15.0 %); incidence from 1309.03 to 1037 per 1,000 children (declination for 20.8 %). Therefore for January 1, 1996 the morbidity in affected *paediatric population substantially exceeded the average value for Ukraine.*

In morbidity analysis for diseases classes the neoplasmas class possess the leading place in pathology growth structure (due to thyroid cancer), the second rank is proprial to congenital abnormalities, that is followed with nervous system and sensory organs diseases, than - blood system pathology, digestive system diseases and genitourinary tractus ones. That is remarkable, the morbidity of the affected *paediatric population for the first years after the accident remained lower in spite of its growth than morbidity of the whole paediatric population in Ukraine. The step-by-step excess was first fixed somewhere in 1992 - 1993.*

From the diseases classes with substantial growth the congenital malformations are to be marked, as the morbidity level increase in 5.7 times was observed since 1987 to 1995. That of nervous system and sensory organs - in 5.7 times, for blood system and hemopoetic organs - growth in 5.4 times is present.

The mortality rate among the affected contingents as before is of tendency to increase. Values in 1996 were: CACCP - 9.06 ‰, face number - 2297; the workable population of Ukraine mortality rate is 6.5 ‰, that for the evacuated population is 11.6‰, face number - 684; for the contaminated territories residents - 18.42‰, face number - 34,079. The mortality rate for Ukraine consists 15.2. The 3178 death cases according to Expert Councils conclusions can be connected to Chernobyl accident consequences; 773 cases among CACCP in 1996.

CONCLUSIONS

The revealed health status disorders genesis reasons can be connected both to the unfavourable radioecological situation (as the result of thyroid irradiation, CACCP general overexposure and several years-long effecttion of low radiation doses in population resident on contaminated soils) and unfavourable non-radiation origin factors effecttion (life conditions deterioration, dietary shortenings, prolonged psycho-emotional strain).