

Occupational morbidity and industrial traumatism as medico-social problem in Ukraine

Wypadki śmiertelne i urazy zawodowe jako socjalno-medyczny problem na Ukrainie

Abstract:

Average level of occupational morbidity in Ukraine for the last ten years is 13.3 ± 4.9 by 100 000 working population. Data analysis concerning industrial traumatic injuries testify, that for the last ten years general number of traumatized persons decreased from 50872 cases in 1998 to 16491-in 2008 (by 67,5%). The number of mortal cases from industrial traumatic injuries decreased from 1504 in 1998 to 1018 in 2008 (by 28,9%). 34.0 cases of industrial traumatism fit on each 10 000 workers in 1998 and 14.3 in 2008 ($p < 0,001$).

Streszczenie:

Średnia liczba wypadków śmiertelnych w pracy na Ukrainie w ostatnich 10 latach wyniosła 13.3 ± 4.9 na 100 000 osób. W pracy analizowano jedynie udokumentowane dane dotyczące urazów i zranień w ostatnich 10 latach. Liczba osób poszkodowanych obniżyła się z 50872 przypadków w 1998 do 16491- w 2008 (ok. 67,5%). Ilość wypadków śmiertelnych w przemyśle obniżyła się z 1504 w 1998 do 1018 w 2008 (ok. 28,9%) a zatem wskaźnik wypadków w przemyśle zmalał z 34 na 10 000 pracowników w roku 1998 do 14,3 w roku 2008.

Key words: occupational morbidity, industrial traumatic injuries, Ukraine

Słowa kluczowe: wypadki śmiertelne przy pracy, urazy i zranienia przy pracy w przemyśle, Ukraina

Introduction

Occupational morbidity and industrial traumatism in Ukraine is complicated social and economical problem. Occupational morbidity and industrial traumatism are components of population general morbidity. Their origin is connected with effect on the human organism unfavorable factors of working environment and labour process. Near 260 mln cases of occupational diseases is registered in the world every year. Among them 1,1 mln cases are finished by death. Near 270 mln workers are suffered from traumatic injures yearly. 2,2 mln are perished during work. Every 15 sec is perished one man. Numerous accidents, disability and loss of health at the work are resulted in suffering and economical losses. Economical wastes from workers death and health loss at the work reached 4% gross output of world economics and exceed 1.25 trillion american dollars. This situation disturb steady development of many countries. [1,2,3,4,5].

Beside economical wastes society incur significant social and psychological losses, that result in changes of life conditions of suffered workers and their relatives, Unsatisfactory conditions and safety of work, imperfect technological processes, physically wear and tear and moral obsolete equipment, machines and mechanisms, which not correspond to safety, and health of workers, absence of general and individual protection, discrepancy

of workplaces to demands of sanitary and hygienic standards, insufficient consciousness of workers concerning their health etc are the basis of industrial traumatism or occupational diseases.

Number of publications are dedicated to problem of study and analysis of occupational morbidity and industrial traumatism [6,7,8,9,10,11].

Aim of this study was determination of regularities formation of occupational morbidity and individual traumatism in Ukraine in dynamics.

Materials and methods of study

The analysis of occupational morbidity was conducted according to the data presented by Centre of medical statistics of Ministry of Health of Ukraine, data base of Automatized Information System "Occupational morbidity; Institute for occupational health of AMS of Ukraine.

The analysis of industrial traumatism was conducted to the data state Committee of Statistics of Ukraine, Centre of medical statistics of Ministry Health of Ukraine, Fund of social insurance from accidents and occupational diseases of Ukraine, results of selective studies, State Committee of Supervision in Mining and Industry, National research Institute for labour protection for the last ten years (1998 - 2007).

Index of industrial traumatism – coefficient of frequency of accidents . Cf was calculated in this way.

$$Cf = \frac{1000 \cdot n}{D}$$

where,
 n- number of accidents for reporting period with disability 1 and more days;
 p- number of workers during reporting period.

Statistical data were evaluated with the help of cluster and correlation analysis, by methods of parametrical analysis with determination of their trustworthiness in accordance with Student criteria.

Results of study and their discussion

Data analysis concerning occupational morbidity testify, that average level of new cases such morbidity in Ukraine for the last ten years is 13.3 ± 4.9 by 100 000 workers. Such level below of average level in European Union and all countries of Europe. This is connected with various methodical approaches to determination of occupational diseases criteria in some countries, order of their registration and also with insufficient revealing in connection with disintegration of medical service of working population [7].

Trustworthy increasing ($p < 0,001$) occupational morbidity absolute indices was observed for 11 year period. So, in 1998 was 3545 cases and in 2008 – 6 700 cases of occupational diseases thus observed augmentation by 88,9%. Intensive index (by 10 000 workers) from 1,8 to 5,21 cases, increasing in 2,9 times.

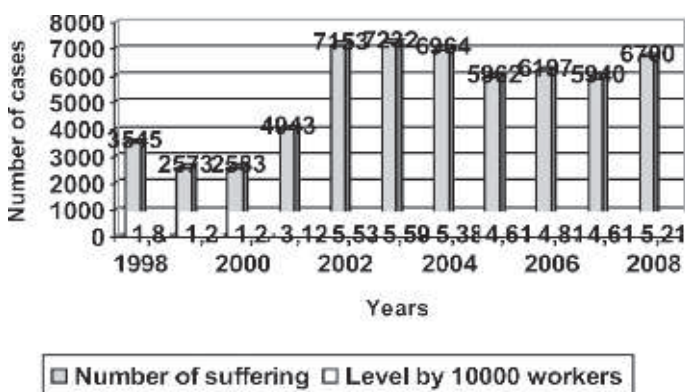


Fig. 1 Dynamics of occupational morbidity in Ukraine during 11 years (from 1998 to 2008).

The greatest increasing of occupational morbidity indices for this period fall on years 2002-2004 in connection with the adoption social laws and work starting of Fund of social

insurance from accidents and occupational diseases in order to receive essential material compensations because of health damage from work conditions. In accordance with cluster analysis territory which have high level of industry development was attributed to class with steady high and superhigh level of occupational pathology.

Main branches of industry which formed of occupational pathology in 2008 were: coal industry (78,5% cases), metallurgy (7,7%), mechanical engineering (5,7%). Relatively low indices of occupational morbidity structure belong to building (0,1% cases), chemical (0,2), light industry (0,4%), industry of building materials (0,6%), agriculture (0,6%).

The greatest specific weight among nosological forms of pathology belong to chronic dust bronchitis (35,5% cases from general number of occupational diseases), pneumoconiosis (27,5%), diseases of musculoskeletal apparatus (24,2%). vibration disease (5,9%), occupational deafness (4,2%), diseases of chemical genesis (2,3%).

Data analysis concerning industrial traumatism testify, that for last 11 years general number of traumatized workers was decreased from 50872 cases in 1998 to 16491 – in 2008 (by 67,5%). For this period number of mortal cases was decreased from 1504 to 1068 (decrease by 28,9%). 34.0 cases of industrial traumatism on each 10 000 workers were in 1998 and 14.3 in 2008 ($p < 0,001$).

The correlation of general industrial traumatism and industrial traumatism with mortal consequences indices not correspond with existed in the world regularities. For example, 1.1-1.16 mln accidents yearly is registered in Germany, and perished only 1.1 – 1.7 thousands workers (0.08 – 0.12%) [2,14,17].

The cases with mortal consequences in Ukraine in the structure of general industrial traumatism take up 4,5-5 %, that testify about aspiration for put aside of significant number of accidents [11,14,15,16,17].

The trend of industrial traumatism decreasing concerns not all branches of industry.

So, his level among workers of agriculture, manufacturing industry, construction in power, gas and water production and social sphere hasn't the trend for decreasing. The level of the industrial traumatism is correlated with the internal gross output, the augmentation production volumes, the work conditions, the state of supervision activity concerning of labour protection and safety [11]. (Table 1).

The first place concerning number of accidents among workers occupied by extracting industry, the second-manufacturing, the third-agriculture, the fourth-construction, the fifth-transport.

The distribution of places concerning number of mortal accidents is the same. The most of all distributed are accidents in the industrially developed regions (Donetsk,

Lugansk, Dnipropetrovsk, Kharkiv, Zaporizhya, Kiev-city), they responsible for 65 – 70% of all cases.

Table 1. The number of suffered in the production at a rate by 10 000 workers (Kw) Calculation meaning in 7 tnv due form.

Kind of economical activity	Years				
	2004	2005	2006	2007	2008
In all	1,95	1,81	1,68	1,64	1,43
Agriculture, hunting, forestry	1,38	1,42	1,40	1,31	1,24
Fishing industry	1,38	1,42	1,58	1,43	2,02
Extractive industry	16,73	14,49	12,82	12,97	11,80
Manufacturing industry	2,36	2,28	2,18	2,17	1,91
Electric industry, production of gas and water	1,10	1,07	0,96	1,03	0,95
Construction	2,78	2,62	2,45	2,48	2,34
Wholesale and retail trade	0,52	0,49	0,59	0,56	0,49
Hotels and restaurans	0,34	0,35	0,29	0,48	0,42
Transport	1,07	1,09	0,93	0,99	0,87
Financial activity	0,40	0,54	0,49	0,29	0,28
Operations with immovables, renting, judicial persons service	0,88	0,86	0,78	0,73	0,67
State administration	0,49	0,49	0,53	0,46	0,40
Education	0,41	0,39	0,42	0,36	0,30
Public health and social help	0,51	0,50	0,56	0,47	0,45
Collective, public and personal service	0,84	0,72	0,94	0,92	0,69
Other	0,57	0,36	0,36	1,04	0,00

The change property forms at the undertakings negatively affected on the labour protection quality, the hygienic standards, the individual means of protection using. The quality of sanitary and epidemiological supervision was worsened. And as the consequence of this-increasing the share of the traumatism at the private undertakings in the constraction in comparison with the state and communal undertakings.

Analysis of the mortal accidents concerning of their appearance causes is shown, that in 62,8% cases this causes have the organizational character. 24,2% cases have the technical causes and 13,0% have causes of the psychofisiological character.

In the general structure of the accidents causes in production art prevailed: the non-execution of the instructions concerning work protection demands (20,13%), the non-execution of official duties (8,54), the breach of the technological process (6,55%). Almost 5% of mortal accidents are occurred owing to unsatisfactory technical condition of production means.

The mortal traumatism is remained high owing to the following factors: the fall of victim (24,1%),the fall, bringing down, collapse of the objects, materials, rock, soil (16,38%), the traffic incident (19,14%), the effect of objects and details, which moved, fly away, revolved (13,33%), the affection by the current (8,78%).

Mainly these dangerous cases are happened owing to organizational causes.

Thus, the analysis of causes of origin occupational morbidity and industrial traumatism testify, that signicant their number in production is, from one side, at expense of unsatisfactory of sanitary and epidemiological condions, work safety concerning technical and technological causes especially in small and middle bisness from other-owing to unsatisfactory level of knowledge concerning work protection in the leaders, managers of production activity, and in workers, or neglection of these knowledge. The perspective of the occupational morbidity and industrial traumatism decreasing is on condition that shall be influence on abovementioned causes. Ways of the problem concerning decreasing occupational mobility and industrial traumatism solution are in the following plane:

- Perfection of the system technical regulation in the production: technical securing the state supervision for safety of work conducting, the labour protection and technical safety condition, the control of agreements between employer and worker concerning hygiene and labour protection in accordance with the legislation currently in force;
- The realization of permanent and exacting the technical documentation expertise concerning their conformity to demands of normative and legal statements on problems hygiene and work protection;
- During introduce a passport system concerning build-ings, erections, attestation of the working places, evaluation of sanitary and hygienic factors of pro-duction environment, more attention attach to the guestionings of the work safety;
- The gradual withdrawal from the exploitation and repair the production buildings and erections, ma-chines, equipment, transport means, other production means, which not correspond to demands of normative statements of labour protection;
- The training and retraining, attestation ol specialists in labour hygiene, occupational pathology, the organizers of health protection, state inspectors of state mining and industrial supervision, sanitary physicians, other spe-cialists concerning guestionings of hygiene and labour protection;
- The elaboration and introduction in the key industries of psychofisiological selection of workers engaged at working places with harmful and dangerous conditions;
- The realization of information and explanatory work at all levels by means mass-media, scientific and popular publications directed on increasing of the competence of specialists, workers and population concerning prevention of the occupational diseases and industrial accidents in the production, heath promotion and life prolongation in the work activity process.

Conclusion

- The trend of occupational morbidity increasing (by 38,9%) and industrial traumatism decreasing (by 64,9%) including decreasing mortal traumatism (by 28,9%) was observed in dynamics (1998-2008).
- The coal, metallurgic, machinebuilding industries, construction and transport are main branches of the economics which form of the occupational morbidity and industrial traumatism;
- Donetsk, Dnipropetrovsk, Lugansk, Kharkiv, Zaporizhsk, Kharkiv, Lviv, Kiev-city are the regions, with steady high levels of occupational morbidity and industrial traumatism, which were determined in the observation dynamics;
- The diseases of respiratory organs of the dust etiology, nervous system and organs of sense under exposure of the noise and vibration, the musculoskeletal apparatus under exposure of physical factors and loading are predominated in the structure of occupational morbidity;
- The level of industrial traumatism is decreasing during accretion increasing of the inner gross product, using of investments for implementation of the modern technologies, improving of the work conditions and work safety. The correlation between industrial traumatism and the size of production has diverse directed character in dependence from the production kind;
- The level of occupational morbidity and industrial traumatism is correlated with work conditions (every fourth worker works in the conditions, with don't correspond of the sanitary and hygienic standards on many parameters), the technological, organization and psychophysiological factors.

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