

3 (2001 ~ 2003)

Abstract

Analysis of Occupational Diseases Compensated with the Industrial Accident Compensation Insurance from 2001 to 2003

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Aims: The purpose of this study is to analyze the characteristics of the occupational diseases compensated with the Industrial Accident Compensation Insurance that is operated by the Korea Labor Welfare Corporation (KLWC).

Methods: Using the KLWC database, we collected 4,240 cases of compensated occupational disease occurring between 1 January 2001 and 31 December 2003. We analyzed the characteristics (sex, age, type of occupational disease, exposure material, type of industry and occupation, etc.) of occupational diseases using the KLWC electronic data and compensated with the data of claimed cases investigated by the Korea Occupational Safety and Health Agency (KOSHA).

Results: KLWC approved 4,240 cases, including 1,199 deaths (28.3%). Men accounted for 92.6% (3,925 cases) of the approved cases. The most common age group was 50-59 years of age (n=1,433, 33.8%).

The majority of diseases were respiratory diseases (2,906 cases, 68.5%), occupational hearing loss (687 cases, 16.2%), infectious disease (238 cases, 5.6%), intoxication (117 cases, 2.8%), skin diseases (111 cases, 2.6%) and cancer (41 cases, 1.0%). The causal hazardous agents were dust (2,870 cases, 67.7%), physical agents (770 cases, 18.2%), biological agents (301 cases, 7.1%), chemical agents (242 cases, 5.7%), and heavy metals (51 cases, 1.2%).

The major types of industry were mining and quarrying (2,708 cases, 63.9%), manufacturing (1,112 cases, 26.2%), health and social work (159 cases, 3.8%) and construction (63 cases, 1.5%). The type of occupation included craft and related trades workers (2,622 cases, 61.8%), elementary occupations (730 cases, 17.2%), senior officials and managers (327 cases, 7.7%) and plant and machine operators and assemblers (225 cases, 5.3%).

Conclusions: We were able to elucidate the kinds of occupational disease and the characteristics of workers through this study. Many compensation cases occurred among non-manufacturing and non-mining workers, especially health care workers, and there were various kinds of disease. This suggests that a management policy must be established to prevent occupational diseases occurring among workers in the above types of industry.

Key Words: Compensated occupational diseases

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60~69 1,275 (30.1%),
1) 40-49 759 (17.9%) , 80
41 (1.0%) .
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50 899 (21.6%), 50 300
3 1,098 (26.3%), 300 1,000
1,093 (26.2%), 1,000 824
2) (19.8%) 50 300
가 (Table 1).

2.

가 2,906 (68.5%)
가 () 687
(83) (16.2%), 238 (5.6%),
3) , 가 117 (2.8%),
(111 (2.6%) . 41 ,
가 10 , () 16
) , 3 , 58 , 2 ,
(2000 12 , 6 , 22 , ?
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(71.7%) 3,925 1,180 (30.1%)), 1 () . ,

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Table 1. General characteristics of study subjects

Variables		No. of workers (%)
Year	2001	1,388 (32.7)
	2002	1,146 (27.0)
	2003	1,706 (40.3)
Sex	Men	3,925 (92.6)
	Women	315 (7.4)
Disease or death	Disease	3,041 (71.7)
	Death	1,199 (28.3)
Age (years)	-19	4 (.1)
	20-29	162 (3.8)
	30-39	230 (5.4)
	40-49	759 (17.9)
	50-59	1,433 (33.8)
	60-69	1,275 (30.1)
	70-79	336 (7.9)
	80-	41 (.9)
Size of enterprises (No. of workers)	- 4	257 (6.2)
	5-49	899 (21.6)
	50-299	1,098 (26.3)
	300-999	1,093 (26.2)
	1000-	824 (19.8)

3. 가 , 48 , 36 ,
 13 , 7 , 7 , 3 ,
 35 , 3 . 110
 (73.8%) 가 , B
 , 2,870 (67.7%), 770 가 10 가 .
 (18.2%), 301 (7.1%), 51 24 가 ,
 242 (5.7%), 51 (1.2%), 6 13 , 6 , 5
 가 . , 1 .
 2,870 2,628 (91.6%) 242 가 137
 가 , 214 (56.6%) 가 ,
 (7.5%), 13 , 15 (52 , 53 . 137
 3 , 4 , 2 , 1 , 가 77 가 ,
 1 4) . 6 , 2 , 1
 770 686 (94.3%) . 52
 가 , 58 , , 가 21 가
 10 , 7 (2 , 2 , 16 , 5 .
 1 , 1 , 1), 가 11 가 (Table 3)
 6 , 3 . (Table 5).
 301 149 (49.5%)

Table 2. Distribution of the type of occupational disease

Kinds of disease	No. of workers (%)
Respiratory disease	2,906 (68.5)
Occupational hearing loss (including ear drum damage & sudden hearing loss)	687 (16.2)
Infectious disease	238 (5.6)
Disease by toxic materials	117 (2.8)
Skin disease	111 (2.6)
Cancer	41 (1.0)
Liver disease	10 (.2)
Disease by heat and cold	16 (.4)
Disease by abnormal pressure	3 (.1)
Disease by vibration	58 (1.4)
Mental and behavioral disorders	2 (.0)
Disease of nervous system	12 (.3)
Eye disease	6 (.1)
Nasal disease	22 (.5)
Hematologic and bone marrow disease	5 (.1)
Renal disease	2 (.0)
Cardiac disease	4 (.1)
Total	4,240 (100.0)

4. (26.2%), 159 (3.8%),
63 (1.5%) . 50
20 47 ,
2,708 (63.9%) 44 , 32 , 24 ,
가 1,112 24 , 8 , ,

Table 3. Disease classification by hazardous agents

Large classification	Sub-classification	No. of workers (% of Subclassification)
Dusts	Coal dust	2,628 (91.6)
	Mineral dust except coal	214 (7.5)
	Asbestos	13 (.5)
	Organic dust	4 (.1)
	Others	7 (.2)
	Unclassified	4 (.1)
Physical agents	Noise	686 (89.1)
	Vibration	58 (7.5)
	Heat and cold	16 (2.1)
	Abnormal pressure	3 (.4)
	Radiation	7 (.9)
Heavy metals	Chromium	24 (47.1)
	Lead	13 (25.5)
	Cadmium	6 (11.8)
	Manganese	5 (9.8)
	Arsenic	1 (2.0)
	Cobalt	1 (2.0)
	Nickel	1 (2.0)
Chemicals	Organic solvents	137 (56.6)
	Specific chemicals	52 (21.5)
	Others	53 (21.9)
Biologic agents	Plant	35 (11.6)
	Bacteria	149 (49.5)
	Virus	48 (15.9)
	Protozoa	13 (4.3)
	Rickettsia	36 (12.0)
	Bee	7 (2.3)
	Scabies	7 (2.3)
	Fungus	3 (1.0)
	Unknown	3 (1.0)
Unclassified		6 (100.0)

3 (2001 ~2003)

5 , 가 5 , 17 , 10 , ,
 3 , 3 , , 가 3 .
 2 , 1 , , 2,622 가
 , , , 2,388 (91.1%) 가 , 가 2,047
 4 , , 가 2,047
 . (85.7%) 가 (Table 4).
 가 2,622
 (61.8%) 가 5.
 730 (17.2%), ,
 327 (7.7%), , 225 4,240
 (5.3%), 가 138 (3.3%), Table 5
 115 (2.7%), 가 52 (1.2%), (Table 5).

Table 4. Classification by Industry and occupation

		No. of workers (% of Subclassification)
Industrial classification	Mining & quarrying	2,708 (63.9)
	Manufacturing	1,112 (26.2)
	Health & social work	159 (3.8)
	Construction	63 (1.5)
	Other community, repair & personal service activities	47 (1.1)
	Agriculture and forestry	44 (1.0)
	Transport	32 (.8)
	Real estate & leasing	24 (.6)
	Business activities	24 (.6)
	Hotels & restaurants	8 (.2)
	Recreational, cultural & sporting activities	5 (.1)
	Private households with employed persons	5 (.1)
	Post & telecommunications	3 (.1)
	Financial institutions & insurance	3 (.1)
Electricity, gas & water supply	2 (.0)	
Education	1 (.0)	
Job classification	Craft and related trades workers	2,622 (61.8)
	Elementary occupations	730 (17.2)
	Legislators, senior officials and managers	327 (7.7)
	Plant, machine operators and assemblers	225 (5.3)
	Professionals	138 (3.3)
	Clerks	115 (2.7)
	Technicians and associate professionals	52 (1.2)
	Service workers	17 (.4)
	Sales workers	10 (.2)
	Skilled agricultural, forestry and fishery workers	3 (.1)

Table 5. Hazardous agents and disease classification(except noise induced hearing loss)

Disease	Disease sub-classification	Hazardous agents
Respiratory disease (2,906)	Pneumoconiosis including lung cancer(67) complication(2,843)	Coal dust(2,628), Mineral dust(214), Abestos(1)
	Asthma(54)	Chemicals(46): Toluendiisocyanate(21), Drug(9), Organic solvents for painting(4), Dye(2), Sulfite(1), Turpentine flux(1), Styrene(1), Epoxyresin(1), Chlorine(1), Formamide(1), Acid anhydrides(1), Formaldehyde(1), Welding fume(1), Chemicals for manufacturing paper(1) Dust(5): Grain dust(2), Organic dust(1), Cotten dust(1), Unclassified dusts(1) Metals(3): Chromium(2), Cobalt(1)
	Chronic obstructive pulmonary disease(5)	Ammonia(1), Organic dusts(1), Engine exhausts(1), Unclassified dusts(2)
	Pharyngitis & laryngitis(2)	Organic solvents(1), Cement dust(1)
	Interstitial pneumonia(1) Adult Respiratory Distress Syndrome(1)	Asbestos(1) Unclassified dusts(1)
Infection (238)	Tuberculosis(110)	Mycobacterium tuberculosis(110)
	Typhus fever(36)	R. Tsutsugamushi(36)
	Hepatitis(14)	Heptitis A(1), B(10), C(3) virus
	Malaria(13)	Plasmodium spp.(13)
	Epidemic hemorrhagic fever(10)	Hantaa virus(10)
	Scabies(7)	Sarcoptes scabies(7)
	Chickenpox(6)	Varicella zoster virus(6)
	Measles(4)	Measles virus(4)
	*Acquired Immune Deficiency Syndrome(AIDS)(4)	AIDS virus(4)
	Cholera(4)	Vibrio cholera(4)
	Typhoid fever(4)	Salmonella spp.(4)
	Tetanus(3)	Clostridium tetani(3)
	Fungal infection(3)	Fungus(3)
	Meningoencephalitis(8)	Herpes virus(1), Cytomegalovirus(1), Respiratory syncytial virus(1), Cryptococcus meningitidis(1), unknown virus(4)
	Pneumonia & Septicemia(3)	Unknown(3)
	Pseudomonas(1)	Pseudomonas aeruginosa(1)
	Dengue fever(1)	Arthropod-borne virus(1)
Leptospirosis(1)	Leptospirosis spp.(1)	
Melioidosis(1)	Pseudomonas pseudomallei(1)	
Epidemic Keratoconjunctivitis(1)	Adenovirus(1)	

* including simple needle stick injury

Table 5. Hazardous agents and disease classification(except noise induced hearing loss) (continued)

Disease	Disease sub-classification	Hazardous agents
Infection (238)	Methicillin-Resistance Staphylococcus infection(1)	Staphylococcus spp.(1)
	Viral cardiomyositis	Unknown virus(1)
	Poststrptococcal Glomerulonephritis(1)	Group A, -hemolytic streptococcus(1)
	Otitis media(1)	Unknown bacteria(1)
Intoxication (117)	Carbon disulfide intoxication(77)	Carbon disulfide(77)
	Lead intoxication(13)	Lead(13)
	Organic solvents intoxication(12)	Organic solvents(12)
	Cadmium intoxication(6)	Cadmium(6)
	Methyl bromide intoxication(5)	Methyl bromide(5)
	Multiple Chemical Sensitivity Syndrome(1)	Organic solvents(1)
	Gas intoxication(1)	Gas emitted by welding(1)
	Dental erosion by acid(1) Avascular necrosis of femoral head(1)	Unknown acids(1) Organic solvents(1)
Skin Disease(111)	Contact dermatitis(63)	Plants- Rhus and many kinds of grass(30) Chemiclas(31)-Organic solvents(12), Waste material(5), Epoxy resin(3), Antibiotics(2), Dye(2), Insecticide(1), Pesticide(1), Rubber glove(1), Water and detergents(1), Cosmetics(1), Unknown chemicals(2) Dusts(2)-Organic dust(2)
	Cellulitis(21)	Streptococcus pyogenes(21)
	Dermatitis by bee sting(7)	Bee sting(7)
	Vitiligo(6)	Organic solvents(5), Unknown chemical(Street sweep- er)(1)
	Urticaria(5)	Rhus and many kinds of grass(5)
	Erythema multiforme(2)	Dichlorobenzidine(1), organic solvents(1)
	Dermographism(1)	Dye(1)
	Phompholyx(1)	Water and salts(1)
	Nummular eczema(1)	Heavy metals including nickel(1)
	Scleroderma(1)	Free silica
	Stevens-Johnson syndrome(1)	Trichloroethylene(1)
	Psoriasis(1)	Antibiotics(1)
	Pigmentation(1)	Dye(1)
Cancer(41)	Lung cancer(22)	Asbestos(9), Chromium(5), Foundry dust including free silica and PAH(3), Diesel exhaust(2), Tar(1), Asphalt fume(1), Coke oven emission(1),

* including simple needle stick injury

Table 5. Hazardous agents and disease classification(except noise induced hearing loss) (continued)

Disease	Disease sub-classification	Hazardous agents
Cancer(41)	Mesothelioma(2)	Asbestos(2)
	Leukemia(12) and lymphoma(1)	Benzene(11), Ionizing radiation(2)
	Skin cancer(1)	Ultraviolet(1)
	Nasopharyngeal cancer(1)	PAH(1)
	Hepatocellular carcinoma(1)	Overwork and stress(3)
	Unknown cancer(1)	Unknown(1)
Nasal disease(22)	Nasal septum perforation(16)	Chromium(16)
	Sinusitis(3)	Chromium(1), Organic solvents(Cutting oil)(2)
	Anosmia(2)	Organic solvents(1), Unknown chemicals(1)
	Rhinitis(1)	Organic solvents(Cutting oil)(1)
Cardiac disease(4)	Angina pectoris(2)	Carbon monoxide(1), Organic solvents(1)
	Myocardial infarction(1)	Nitroglycerin(1)
	Dilated cardiomyopathy(1)	Carbon monoxide(1)
Liver(10)	Toxic hepatitis(10)	Dimethylformamide(6), Chemicals using by waste material treatment(4)
Heat and cold(16)	Sunstroke(10)	Solar energy(10)
	Frost bite and necrosis(5)	Cold(5)
	Cryoglobulinemia(1)	Cold(1)
Abnormal pressure(3)	Caisson 's disease(3)	Abnormal pressure(3)
Mental & behavioral disorders(2)	Schizophrenia(1)	Organic solvents(1)
	Post-traumatic stress disorder(1)	Stress by work-related abrupt hearing loss(1)
Nervous system(12)	Peripheral neuropathy(4)	n-Hexane(2), Arsenics(1), Organic solvents(1)
	Parkinson syndrome(4)	Manganese(4)
	Amyotrophic lateral sclerosis(2)	Organic solvents(1) Electromagnetic radiation(1)
	Dystonia(1)	Manganese(1)
	Multiple sclerosis(1)	Organic solvents(1)
Eye(6)	Keratitis(2)	Laser(1), Organic solvents(1)
	Cataract(1)	Laser(1)
	Central retinitis(1)	Welding related hazardous ray(1)
	Choroiditis(1)	Foreign body(1)
	Subconjunctival hemorrhage with glaucoma(1)	Foreign body(1)
Hematologic system(5)	Myelodysplastic syndrome(2)	Benzene(2)
	Aplastic anemia(3)	Benzene(3)
Renal disease(2)	Renal failure(2)	Organic solvents(2)

* including simple needle stick injury

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83.3% 2003 1,706 2003 2001 2002
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. 147 (61.8%)
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가

가

77%(16,888

15,933)가

가가 가

RIDDOR

1995(Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995)

가

SWI(Self-reported Work-related Illness), THOR(The Health and Occupation Reporting), IIS(Industrial Injuries Schemes), DCs(Death Certificates for some types of occupational lung disease)

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(HSC, 2004).

3 (2001 ~ 2003)

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가 1,199 (28.3%) , 가
3,041 (71.7%) . 50-59 가
1,433 (33.8%) 가 ,
50 300 26.3% 가

가

2,906 (68.5%)

() , 가 (1
()) 14) 687 (16.2%),

238 (5.6%), , 가

117 (2.8%), 111

(2.6%) . 58 , 41 ,

가 ,

22 , 16 ,

12 , 10 , 6 , 5 ,

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2,870 (67.7%), 770

(18.2%), 301 (7.1%),

242 (5.7%), 51 (1.2%)

가 .

2,708 (63.9%) 가

1,112 (26.2%),

159 (3.8%), 63 (1.5%)

: 2001 2003 3 가

2,622 (61.8%) 가

730 (17.2%),

327 (7.7%), , 225

(5.3%), 가 138 (3.3%) .

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(92.6%), 315 (7.4%) .

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