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Abstract

The Occupational Hazards of Interns & Residents During Training

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Objects: Residents are exposed to various hazards and harassed by sleep deficiency due to overwork. This study was performed to outline the health condition of residents and develop the ways of improving it.

Methods: A questionnaire was distributed to 881 army doctors who enrolled at the Korea Third Military Academy and The Armed Force Health Service School in 2000 with the exception of medical doctors who joined the armed service without going through intern and resident periods, dental and oriental medical doctors. 784 (89.0%) of the 881 questionnaires were returned of which 704 cases (79.9%). This should actually be 89.0% were regarded for analyses as being reliable data.

Results: More than 20% of residents were exposed to radiation, laser, disinfectants, anesthetic gas, and anticancer drugs during their training periods with preventive measures for each of these hazards taken in about 10% of the cases of the lesser hazards but in about 35% for the hazards from radiation and laser. 91.1% of residents had experience of needlestick injuries during their training periods with over 36.3% being exposed to patients with infection during that time. The cases contracting HBV and HCV diseases due to pricking are 2.3% and 0.6% respectively. The average number of night duties per month during a one-year resident's period was about 19. The average sleeping time on duty during a one-year residents was less than 4 hours.

28.4% of respondents were not satisfied with their occupation, 96.5% felt tired from overwork and 69.5% wanted to change their occupation to another that would pay the same salary.

Conclusion: Residents are exposed to harmful physical, chemical and biological factors, but the preventive care seldom undertaken. In addition, their overwork brings about lack of sleep which causes them problems when giving medical treatment to patients during their training periods. Despite the resident's interest in an occupation as a doctor, many intend to select other occupations if they can receive the same salary.

According to the above results, preventative systems and measures should be prepared with environmental improvements for residents, and proper rewards for their overwork should be accomplished

Key Words: Residents, Hazards, Overwork, Sleeping hours, Needlestick injury.

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Table 4. Average frequency of night duty per month and average sleeping hours on duty between Resident Group

Resident group	†Frequency of ND per month	†Sleeping hour on ND	†Sleeping hour on DD
R1	18.7 ± 7.7 ^a	3.6 ± 1.7 ^a	6.0 ± 1.7 ^a
R2	11.8 ± 6.7 ^b	4.6 ± 1.4 ^b	6.4 ± 1.3 ^b
R3	8.0 ± 6.6 ^c	5.2 ± 1.8 ^c	6.6 ± 1.1 ^b
R4	6.5 ± 7.0 ^d	5.3 ± 2.0 ^d	6.6 ± 1.1 ^b

†P<0.01 by ANOVA

ND: Night duty; DD: Day duty

R1: Resident grade 1; R2: Resident grade 2; R3: Resident grade 3; R4: Resident grade 4

^{a,b,c,d}: Group with same letter were not significantly different by Scheff's test

1 3.6 5.5 , 5.2 , 5.2
 , 2 4.6 , 3 5.2 3 , 4 가
 , 4 5.3 1 5 .
 4 1 5.8 ,
 6.2 , 6.7 가
 가 4 가 6 (P<0.05).
 2 6.6 , 6.5 ,
 6.9 , 3 6.6 ,
 1 6.0 6.6 , 6.6 , 4
 , 2 6.4 , 3 6.6 6.7 , 6.7 , 6.7
 , 4 6.6 (Table 5).
 Alameda country
 7~8 4.
 7
 (Table 4).
 1 704 641 (91.1%) , 623
 19.0 , 20.0 , 11.7 가
 (p<0.05), 2 226 (36.3%) ,
 11.1 , 13.0 , 9.5 가
 , 3 6.0 , 10.0 , (67.0%).
 7.0 , 4 3.7 , (, 310 B 가
 8.9 , 5.0 2) 가 89 (28.7%)
 (p<0.05)(Table 5). 75 (78.9%), 20
 1 3.5 , 3.7 , (21.1%) C
 4.8 , 2 4.7 , 4.5 558
 , 4.9 , 3 5.3 , 가 334 (59.9 %) 224
 5.2 , 5.3 , 4 (40.1%) (Table 6).

Table 6. Study about the needlestick injury

Variable	Number(%)
Needlestick injury during training	
No	63(8.9)
Yes	641(91.1)
Time of needlestick injury	
Intern	422(67.0)
R1	132(21.0)
R2-R4	76(12.0)
Needle stick injury from infected patient	
No	397(63.7)
Yes	226(36.3)
Vaccination after needlestick injury	
No	221(71.3)
Yes	89(28.7)
A burden of vaccination expense	
The person himself	20(21.1)
Working hospital	75(78.9)
Test of HCV Ab before entering	
No	224(40.1)
Yes	334(59.9)

Table 7. Needlestick injury between specialities

Specialities	*Number(%)	†Mean ± SD
IM	267(83.8)	4.9 ± 5.8 ^a
S	293(95.4)	8.7 ± 11.8 ^b
SS	69(85.2)	5.5 ± 4.6 ^a
Total	629(90.9)	6.2 ± 9.2

IM: Internal Medicine; S: Surgery; SS: Supporting Specialities

*: P<0.01 by chi-square test; †: P<0.01 by ANOVA

^{ab}: Group with same letter were not significantly different by Scheff's test

Table 8. Frequency of Infection from biologic hazards

Infection	Number (%)		
	HBV	HCV	Tb
Yes	4(2.3)	1(0.6)	18(7.7)
No	173(97.7)	154(99.4)	215(92.3)
Total	177(100)	155(100)	233(100)

200 194 가
(97.0%), 207 201 (97.1%), 6
52 48 (92.3%) 가

200
191 (95.5%), 207 194 (93.7%),
51 49 (96.1%) 가

가 1 1
458 77.5%(355)가

199 159
(79.9%), 207 154 (74.4%),
52 42 (80.8%) 33

(Table 10).

가
40%

가

8

1.5
(, 2000;
, 1999). 1 가

18.7 , 6.0 가
3.6 , 가
가 가

100 가
(1999) 가

46~50
2
96.5%가

Night-Float system

가 가
가 90% B 4 (2.3%), C

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