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1) 2) 3)

Abstract

**Distribution of Blood Pressure and Current State of Life Style
Modification on Male Workers in a Large Factory:
Analysis According to JNC-6 Guideline**

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Objectives: To describe the distributions of blood pressure level and risk group, and the current state of life style modification in the population of a large factory.

Methods: We surveyed 1,088 workers in a large factory from June 2002 to August 2002. Information related to hypertension was collected through a questionnaire and medical examination. We classified the blood pressure level and risk group using JNC- criteria, and the current state of life style modification and medication according to the blood pressure level in the entire study population.

Results: The prevalence of hypertension was 30.1% in all workers. The distribution of blood pressure level was 656 (60.3%) in normal stage, 160 (14.7%) in high normal stage, 190 (17.5%) in stage 1, 67 (6.1%) in stage 2, and 15 (1.4%) in stage 3. The numbers of workers in risk groups A, B and C were 296 (27.2%), 690 (63.4%) and 102 (9.4%), respectively. Among all workers, 432 (39.7%) needed to modify their lifestyle; 106 of whom (24.5%) needed to go on hypertensive drug medication. Overweight subjects were more common in stage 2 than in other stages (p=0.02). The numbers of smokers and low-exercisers were significantly lower in the higher blood pressure group than the lower blood pressure group (p<0.01). Alcoholic drinking was evenly distributed in all blood pressure level.

Conclusion: The prevalence of hypertension was 30.1% in all workers. The most common stage of blood pressure level was normal, followed by stage 1, high normal stage, stage 2, stage 3. The number of subjects in risk group B was more than that in the other risk groups. We recommend total worker education and the practice of lifestyle modification.

Key Words: Blood Pressure, Life Style, Hypertension

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30 27.8%가

(Alderman &

(98 , 1999). Lamport, 1988).

5

mmHg 35 ~ 40%가

(WHO-ISH,

1999). 2001

1 2 (, 2001), 40

70 115/75 mmHg 20/10 mmHg 가

2 가 (Lewington et al, 2002), 55

90%가

(Vasan et al, 2002).

1.

1,235

2002 6 8

(Capriotti et al, 2000).

1996 1,235

16.5% , 2001

8 1,088

4,217 1,918 (45.5%) 가

1,918 1,569 1 1 2

(81.8%), 329 가

(17.1%), 18 가

(0.9%) 329

240 (72.9%),

86 2.

(26.1%), 3 (0.9%) (

가

, 2002).

10

140/90 mmHg

140/90 mmHg 5

1) 6 ' ' 20 , 30 , 40 , 50
(JNC-6, 1997)

Table 1

1 , 2 , 3
A

B

1

C

SPSS 10.0

mg/dL 160
150 mg/dL 1.
240 mg/dL 40

mg/dL 1,088

(, 2001).

38

24

59 20 가 100 (9.2%),
30 가 542 (49.8%), 40 가 342 (31.4%), 50
가 104 (9.6%) (Table 2).

1.5

BUN(blood

urea nitrogen) 26

2.

2)

Table 3

6

60.3% 가

1

(17.5%),

가

(14.7%), 2

(6.1%), 3

(1.4%)

A 296

B 690

100

0.9

(27.2%)

100 110%가
(, 2001).

(63.4%)

C 102 (9.4%)

6

327

ethanol 30 mL

30.1%

2

4

140/90

1 (4) , 4 , 4

mmHg

17

가

5.2%

2 30

Table 4

가

Table 1. Categories for blood pressure and risk group

Category	Systolic(mmHg)	Diastolic(mmHg)
Blood pressure		
Normal	<130	<85
High normal	130-139	85-89
Hypertension		
Stage 1	140-159	90-99
Stage 2	160-179	100-109
Stage 3	180	110
Risk group		
A	No risk factors* and No TOD/CCD	
B	At least 1 risk factors, No TOD/CCD/DM†	
C	TOD/CCD/DM	

* Risk factors indicates smoking and dyslipidemia

† TOD/CCD/DM indicates target organ disease/ clinical cardiovascular disease/ diabetes mellitus

source : The sixth report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure

Table 2. General characteristics of population in entire study population

Variables	Number	%	
Sex	male	1,088	100.0
Age	<30	100	9.2
	30-39	542	49.8
	40-49	342	31.4
	50-59	104	9.6
	Shift work	yes	501
	no	587	54.0
Labor type	blue collar	789	72.5
	white collar	299	27.5
Education	primary school	3	0.3
	middle school	10	1.0
	high school	466	44.5
	university	569	54.2

(p=0.78).

53.0% 가

(p=0.0001),

(p=0.001).

가 ,

140/90 mmHg

30.1% . 98

20 59

2 12.1% ,

74.2% 가 , 30.0%

가 (p=0.02), 6

가 (p=0.001), 140/90 mmHg

(p=0.001).

50% 가 30 4,209

Table 3. Distribution of level of blood pressure and risk group in entire study population

Blood pressure		A N(%)	B N(%)	C N(%)	Total N(%)	Hypertensives N(%)
Normal	N	156 (52.7)	431 (62.5)	69 (67.6)	656 (60.3)	47 (14.4)
	(%)	(23.8)	(65.7)	(10.5)	(100.0)	
High Normal	N	45 (15.2)	107 (15.5)	8 (7.8)	160 (14.7)	8 (2.4)
	(%)	(28.1)	(66.9)	(5.0)	(100.0)	
Stage 1	N	67 (22.6)	107 (15.5)	16 (15.7)	190 (17.5)	190 (58.1)
	(%)	(35.3)	(56.3)	(8.4)	(100.0)	
Stage 2	N	24 (8.1)	36 (5.2)	7 (6.9)	67 (6.1)	67 (20.5)
	(%)	(35.8)	(53.7)	(10.4)	(100.0)	
Stage 3	N	4 (1.4)	9 (1.3)	2 (2.0)	15 (1.4)	15 (4.6)
	(%)	(26.7)	(60.0)	(13.3)	(100.0)	
Total	N(%)	296 (100.0)	690 (100.0)	102 (100.0)	1,088 (100.0)	327 (100.0)
	(%)	(27.2)	(63.4)	(9.4)	(100.0)	(30.1)

Table 4. Current state of life style modification according to level of blood pressure in entire study population

Blood pressure	Overweight*	Smoking**†	Alcohol drinking	Physical**† inactivity	Total persons
Normal					
N (%)†	370 (56.7)	317 (54.1)	440 (69.5)	329 (53.0)	656
High normal					
N (%)†	83 (52.2)	68 (48.5)	114 (73.1)	67 (44.1)	160
Stage 1					
N (%)†	111 (58.4)	68 (39.8)	125 (69.1)	74 (40.9)	190
Stage 2					
N (%)†	49 (74.2)	22 (36.1)	47 (73.4)	22 (34.9)	67
Stage 3					
N (%)†	11 (73.3)	3 (23.1)	8 (61.5)	2 (15.4)	15
Total					
N (%)†	624 (57.6)	478 (49.3)	734 (70.1)	494 (48.0)	1,088

* P < 0.05, ** < 0.01 by ² test

† P < 0.01 by ² test for trend

‡ percentage of total persons

가 29.9% , 2000). 4,226
 19.6% , 33.7% (Jo
 27.8%, 30.0% et al, 2001). 761
 (, 1999). 32%가 (Kim et al,
 30 1,426 2000). 가
 28.2% 24.9%, 30.4%
 , 1995 가
 18.1%, 15.5% (

3,472 140/90 mmHg 가 6
가 1/3 1/4 (Duprez et al, 2002). 2, 3 C
94 1 106 (9.7%)
11%가 30%가 , 1
(Capriotti et al, 2000). A B 326
2,379 (30.0%) . 432 (39.7%)
가 40%
19% (Pollini et al, 1986), .
1 (0.9%)
653 82%가 16 ,
(Getliffe et al, 2000). 327
29,626 5.2%(17) ,
22.1%가 (Lang et al, 2001). 17 16 (94.4%) 140/90
가 mmHg .
20% 40% , 가
60.3%, 14.7%, 1 17.5%,
2 6.1%, 3 1.4% .
, 1,016 32.1%
가 53.1%, 가
14.9%, 1 16.1%, 2 3
15.9% (Ekouevi, 2000). (Valory & David, 2003).
40 가 59.1%(202) , 2003 7
6
B C가 72.8% A 120~139 mmHg 80~89 mmHg
(27.2%) . 2
C
9.4% B 63.4% (JNC-7, 2003).
가 546 478 (JNC-7, 2003),
3 . 가(NHNE)
A가 5.1%, B 4가 ,
가 66.3%, C가 28.6% (Muntner, , , ,
2002), , , ,
가 . , ,
5% 3

가 가 , , , , 가 가 .

가 가 .

가 :

가 , , , ,

가

(Ekouevi et al, 2000; Asmar et al, 2001). 가 8 : 1,235 2002 6

1,088

: 327 30.1%

60.3% 가

1 (17.5%). (14.7%),

2 (6.1%), 3 (1.4%)

40 가 202 (59.1%)

가

A 296 (27.2%) , B 690 (63.4%) , C

6 102 (9.4%) 432

가 A가 (39.7%) 가 , 106

B가 (24.5%)

326 (75.5%)

1 (0.9%)

327 5.2%(17)

17 16 (94.4%)

140/90 mmHg

2 74.2% 가

(p=0.02), 가

54.1% 가

(p=0.001), 가

가 6 (p=0.001). 50%

가 (p=0.78).

50.2% 가

가 (p=0.0001), 가

(p=0.001).

: 30.1%

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