



Abstract

A Clinical Study of Free-Fall Patients in Emergency Department

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Background: Falls are a major cause of emergency room visits. Injury secondary to falls is a largely preventable public health problem. This study helps to better understand the epidemiology of falls from height, then develops prevention strategies.

Methods: We reviewed the medical records of 192 patients admitted to the emergency department of Konyang university hospital with a history of falls from January 2004 to December 2004. Collected data included the patient's age, gender, height of fall and method, outcome of management, Injury Severity Score(ISS).

Results: According to the characteristics of height of fall, the ISS was higher when the patient fell from height of 2 meters or more(13.79 ± 12.17) than not(8.13 ± 9.25)($p < 0.05$). There were positive correlation between mean age and ISS($p < 0.001$, $r = 0.7$). To gender, ISS was higher in the male group(12.73 ± 11.78) than the female group(8.48 ± 10.00)($p < 0.05$).

Conclusion: Falls often results from multiple concurrent problems including environmental and behavioral factors. This study suggests that we need to improve the occupational environment, especially above 2meters, for decreasing injuries of fall from heights. Also we consider the prevention of children from injuries of fall from heights.

Key Words: Height of fall, Injury severity score, Correlation

(2).

39%

13.1%

(1),

, 가

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: 2005 10 28 , : 2005 11 4 , : 2005 11 17 , : 2005 12 5

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(3~5). 24

(6).
가
가 Wyatt 51
30(59%) , 20
가 (7).

가 (1).
(8).

Abbreviated Injury Scale(AIS,1990 revisoin) 6
Injury
Severity Score(ISS)
SPSS 12.0
± t
, Pearson Correlation
p 0.05 가 .

1. ,

2003 1 2004 12 0 87
192 40 44 가 28 (14.6%) 가
0 4 가 25 (13%)
148

Table 1. Age distribution and mean height of fall by age

Age(year)	No. patients	Percent	Mean height of fall(meter)
0~4	25	13.0	1.08
5~9	20	10.4	2.23
10~14	4	2.1	6.63
15~19	3	1.6	2.67
20~24	2	1.0	4.50
25~29	10	5.2	2.75
30~34	12	6.3	2.88
35~39	18	9.4	2.78
40~44	28	14.6	3.43
45~50	15	7.8	3.07
50~54	18	9.4	3.50
55~59	11	5.7	3.36
60~64	5	2.6	2.70
65~69	7	3.6	1.96
70~74	5	2.6	1.90
75~79	6	3.1	1.67
80~84	3	1.6	2.50
Total	192	100.0	2.73

Table 2. Major injuries in 192 patients who fall from a height

Type of injury	No. of Patients	Specific Injury	No.(%)
Head	56	Concussion	26 (46.4)
		EDH	7 (12.5)
		SDH	6 (10.7)
		SAH	5 (8.9)
		Brain contusion	5(8.9)
		Skull fracture	4(7.1)
		IVH	3(5.4)
		Total	56(100)
		Chest	53
Lung contusion	9(17.3)		
Hemothorax	9(17.3)		
Peumothorax	7(13.5)		
Sternum fracture	2(3.8)		
Total	53(100)		
Abdomen	15		
		Abdominal contusion	4(26.7)
		Spleen laceration	3(20.0)
		Retroperitoneal hematoma	2(13.3)
		Kidney laceration	1(6.7)
		Bladder laceration	1(6.7)
		Total	15(100)
		Great vessel	3
		Aortic dissection	1(33.3)
		Deep circumflex iliac a.	1(33.3)
		Gluteal a.	1(33.3)
		Total	3(100)
		Fractures	129
Spine	38(29.5)		
Clavicle	8(6.2)		
Humerus	1(0.8)		
Radius-ulnar	14(10.9)		
Pelvis	19(14.7)		
Femur	10(7.8)		
Tibia-fibula	10(7.8)		
Calcaneal	13(10.1)		
others	7(5.4)		
Total	129(100)		

Table 3. Sex distribution for group of falls

Group/Sex	Male		Female	
	No.	%	No.	%
Occupational	97	65.5	2	4.5
Nonoccupational	48	32.4	37	84.1
Suicidal	2	1.4	4	9.1
Unknown	1	0.7	1	2.3
Total	148	100	44	100

— 18 2 —

(77%), 44 (23%) 가 , 18 ,

3.4:1 . 10 2

14 20 24 6.63 , 4.50 192 69 (36%)가 2 , 123 (64%)가

, 0 4 2 , ISS

가 1.08 8.13±9.24, 13.78±12.17 2

(Table 1). ISS (Table 4).

2. ISS 26.67±21.18, 11.27±10.83

ISS가

(56) (46.4%) , (Table 5). ISS

(53) (48.1%), (15) 12.73±11.78, 8.48±10.00

(26.7%), (129) (29.5%) .

가 (Table 2). 2.93±2.32, 2.05±2.65 38.38±

3. 19.76, 27.98±29.30

(Table 6). 5

(44.3%), (3.1%) (51.6%), ISS Pearson correla-

가 tion 0.71 p-value

(84.1%) , 0.001 ISS 가

(65.5%)가 가 (9.1%) (1.4%) 6.5 가 .

(Table 3).

4. ISS 가 가 가 ,

ISS 0 66 , ISS

11.76±11.51 . 1 가 ,

Table 4. Mean ISS by height

variant	No.	Mean ISS ± SD	p-value
Height	<2m	69	8.13 ± 9.25
	2m	123	13.79 ± 12.17

Table 5. Mean ISS by survivor, death

variant	No.	Mean ISS ± SD	p-value
Outcome	survivors	186	11.27 ± 10.83
	death	6	26.67 ± 21.18

Table 6. Mean age, height and ISS by sex

Sex	No.	Mean Age ± SD	Mean Height ± SD	Mean ISS ± SD
Female	44	27.98 ± 29.30	2.05 ± 2.65	8.48 ± 10.00
Male	148	38.38 ± 19.76	2.93 ± 2.32	12.73 ± 11.78
	p-value	0.007	0.033	0.031

Lambert 100 가 가 5 85 (9,10). 가 (15). 가

Mosenthal (1), ISS 12.73±

Chadwick (11) 4 가 11.78, 8.48±10.00 38±19.76, 27.9&29.30

가 13%, 14.6% , 40~44 , 2.93±2.32, 2.05±

가 2.65 가 , 가 51.6%,

가 44.3% 가 65.5% 가

Mosenthal 84.1% 가 가

(1), chadwick (8) 3.4:1 48 37 가

ISS 5 가 ,

(12) ISS 가 가 가

가 15 ISS Wyatt (63) 44

(70%)

ISS 2.5 , 23 (36.5%)

ISS

p-value가 0.136 ,

가 6 ISS

450 186 ISS (2). 가

117 p-value가 3.1%가 (9.1%) (1.4%) 6.5 가

129 가

Noe 30%가 가 가 ,

33%가 (13) 가 , ,

Noe 가 , ,

(14). 56 가

48 Noe 가 ,

ISS 가 ISS가 가 9 가

(2).

Wang Glaws Coma , 40~44

Scale(GCS)가 13 15 15 가

47%

가 가 2

가 가

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