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= Abstract =

Differences of Bone Mineral Density between Osteoporotic Group with or without Compression Fracture of the Spine.

Eu-Sub Jung, Young-Ki Lee, Seung-III Baek

Department of Orthopaedic Surgery, Presbyterian Medical Center, Chonju, Korea.

Osteoporosis is the metabolic bone disease and the bone is easily fracture by minimal stress due to decreased bone mass. It gets to attract more and more interest due to surprisingly high incidence and prevalence as well as its complications, fracture. We compared the bone mineral density between 45 osteoporotic patients group with compression fractures of the spine, 105 osteoporotic patients group without fractures and 45 normal control group using dual energy X-ray absorptiometry.

We obtained following results.

1. There are statistically no significant differences between bone mineral density of the osteoporotic group with compression fracture of the spine and bone mineral density of the osteoporotic group without fractures.
2. Height and weight had statistically significant correlation with bone mineral density of the lumbar spine anteroposterior view, lateral view and Ward triangle.
3. Fracture threshold of the lumbar spine anteroposterior view, lateral view and Ward triangle

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Tel : 0652) 230 - 8249 Fax : 0652) 87 - 8750

are 0.884g/cm², 0.694g/cm² and 0.514g/cm² according to 90percentile, 0.979g/cm², 0.732g/cm², 0.545g/cm² according to 95percentile.

Key Words: Osteoporosis, Compression fracture, Ward triangle, Spine, Height, Weight

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(standard deviation)

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Table 2. Correlation coefficient between the bone mineral density and weight, bone mineral density and height in each portion of all groups (P=0.001)

r*	Spine AP [†]	Spine lateral	Ward triangle
Weight	0.456	0.258	0.329
Height	0.389	0.356	0.360

* Correlation coefficient

† anteroposterior

Table 1. Mean value of bone mineral density of the spine(L2-L4) AP, Lateral and Proximal femur(Ward triangle)in each groups

	Spine AP	Spine Lateral	Ward triangle
Normal control group	$0.982 \pm 0.104\text{g/cm}^2$	$0.761 \pm 0.094\text{g/cm}^2$	$0.630 \pm 0.101\text{g/cm}^2$
Osteoporotic group without fracture	$0.731 \pm 0.143\text{g/cm}^2$	$0.576 \pm 0.096\text{g/cm}^2$	$0.387 \pm 0.110\text{g/cm}^2$
Osteoporotic group with compression fracture	$0.713 \pm 0.139\text{g/cm}^2$	$0.602 \pm 0.149\text{g/cm}^2$	$0.404 \pm 0.142\text{g/cm}^2$

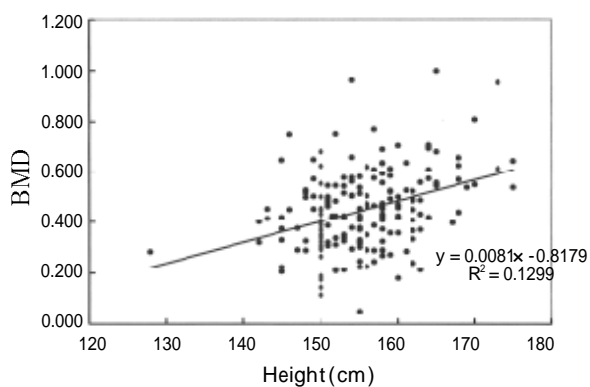


Fig 1. Correlation between the height and bone mineral density of Ward triangle in the all patients group

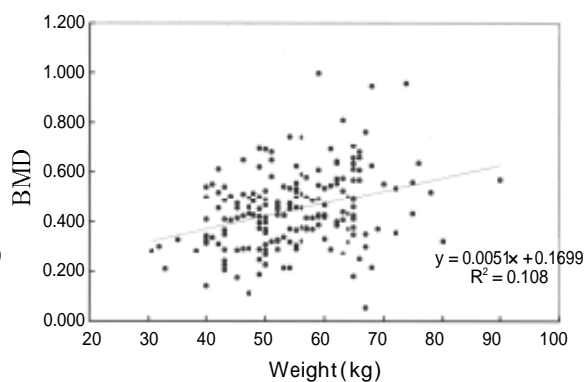


Fig 2. Correlation between bone mineral density of Ward triangle and weight in the all patients group

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Ward

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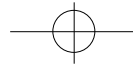
2.

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T-test

(fracture threshold)

90 (percentile)¹¹⁾ 95 7)



1.	0.982	Singh ¹³⁾ , Saville ¹²⁾ ,
$\pm 0.104\text{g/cm}^2$,	$0.761 \pm$	Metacarpal index,
0.094g/cm^2 ,	$0.630 \pm 0.101\text{g/cm}^2$	Calcaneal index
$0.731 \pm 0.143\text{g/cm}^2$,		(QCT),
$0.576 \pm 0.096\text{g/cm}^2$	$0.387 \pm$	(single photon absorptiometry),
0.110g/cm^2		(dual photon absorptiometry),
	$0.713 \pm 0.139\text{g/cm}^2$,	(dual energy X-ray absorptiometry)
	$0.602 \pm 0.149\text{g/cm}^2$,	,
$0.404 \pm 0.142\text{g/cm}^2$	(Table 1).	
	(P<0.001),	
(P<0.001),	(P<0.001)	
		Saville ¹³⁾ Singh ¹³⁾ Pogrand ¹⁰⁾
	(P<0.001).	
		Saville ¹²⁾ , Singh ¹³⁾
(P=0.489),	(P=0.218),	4)
(P=0.494)	가	70
		Ward
2.		Ward
	(Table 2, Fig 1,2)	
		Ward
3.		
	Grubb ⁷⁾ 95	
		3) 1)
가		2)
0.979g/cm^2 ,	0.732g/cm^2 ,	
0.545g/cm^2	Riggs ¹¹⁾	Riggs ¹¹⁾
90		90
0.884g/cm^2 ,	0.694g/cm^2 ,	(percentile)
0.514g/cm^2		Grubb ⁷⁾ DEXA
		95



Melton⁹⁾ 0.965g/cm²,³⁾
 0.85 g/cm² 90 1993 1 1996 12
 0.884g/cm², 40 45 ,
 0.694g/cm², Ward 105 ,
 0.514 g/cm² , 90 45
 0.979g/cm², (Ward)
 0.732g/cm², Ward 0.545g/cm²
 . Ward
 1. 가 가 ,
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 3. 90
 0.884g/cm², 0.694g/cm²,
 Ward 0.514g/cm² , 95
 0.979g/cm²,
 0.732g/cm², Ward 0.545g/cm² .
 , Ward
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