

Denosumab for dialysis patients with osteoporosis: A cohort study

Kyohei Kunizawa^{a,b}, Rikako Hiramatsu^a, Junichi Hoshino^{*a,c,d}, Hiroki Mizuno^c, Yuko Ozawa^c, Akinari Sekine^c, Masahiro Kawada^c, Keiichi Sumida^a, Eiko Hasegawa^c, Masayuki Yamanouchi^a, Noriko Hayami^a, Tatsuya Suwabe^a, Naoki Sawa^a, Yoshifumi Ubara^{a,d}, and Kenmei Takaichi^{a,c,d}

a Nephrology Center, Toranomon Hospital Kajigaya, Kanagawa, Japan

b Department of Nephrology, Kyorin University, Tokyo, Japan

c Nephrology Center, Toranomon Hospital, Tokyo, Japan

d The Okinaka Memorial Institute for Medical Research, Tokyo, Japan

Supplementary table 1

Distribution of doses of vitamin D and calcium carbonate at the first injection of denosumab

(a) Dialysis patients (n=121)

Vitamin D	Daily doses of calcium carbonate				Total
	Zero	0.5-<1.5g	1.5-<3.0g	$\geq 3.0g$	
Active, oral	30%	8%	10%	22%	70%
Active, injection	9%	3%	4%	5%	22%
No vitamin D	4%	1%	0%	3%	8%
Total	44%	11%	14%	31%	100%

(b) Non dialysis patients (n=203)

Vitamin D	Daily doses of calcium carbonate				Total
	Zero	0.5-<1.5g	1.5-<3.0g or Ca/VD/Mg tablets	$\geq 3.0g$	
Natural, oral	0%	0%	35%	0%	35%
Active, oral	50%	0%	6%	0%	56%
No vitamin D	9%	0.5%	0%	0%	9%
Total	59.5%	0.5%	41%	0%	100%

Abbreviation: HD, hemodialysis; NA: not analyzed because of no patient in the cell.

*Ca/VD/Mg tablets: combination of 1,525mg of calcium carbonate, 400 IU of cholecalciferol, and 118.4mg of magnesium

Supplementary table 2

(a) Changes of bone mineral density (BMD) before and after denosumab treatment

Year after Denosumab	N	Before 1 year	After 1 year	p-value
Lumbar spine (BMD%) (T-score)	45	-0.1 ± 7.4% (-0.04 ± 0.48)	5.1 ± 10.5% (0.35 ± 0.62)	0.03
Femoral neck (BMD%) (T-score)	45	-2.4 ± 7.4% (-0.14 ± 0.35)	2.5 ± 7.0% (0.10 ± 0.30)	0.03
Distal radius (BMD%) (T-score)	37	-1.7 ± 3.5% (-0.19 ± 0.38)	0.3 ± 4.8% (0.43 ± 2.31)	0.08

(b) Changes of laboratory values before and after denosumab treatment

Time after denosumab	N	Before 1 year	Before 6 months	Denosumab injection	After 6 months	After 1 year
Alkaline phosphatase (IU/L)	45	283 ± 111	294 ± 106	311 ± 141	247 ± 117	252 ± 133
Intact parathyroid hormone (pg/mL)	43	168[75-304]	111[24-172]	124[55-212]	107[38-198]	51[26-97]

Supplementary table 3

Comparison of patients on dialysis with and without bone mineral density measurement 1 year before denosumab injection.

	With (n=45)	Without (n=76)	p-value
Age (y)	68.1±9.5	65.8±11.1	0.25
Female sex (%)	64.4%	57.9%	0.48
Body mass index (kg/m²)	19.9±2.7	19.5±4.2	0.52
Dialysis vintage (years)	13.7±11.3	15.9±11.8	0.32
Corrected Calcium	9.6±0.6	10.0±0.8	<0.01
Serum Phosphate	4.4±1.2	4.8±1.2	0.16
Alkaline phosphatase (IU/L)	311±329	329±251	0.66
BAP (µg/L)	20.3±12.2	19.2±12.7	0.67
total P1NP (µg/L)	118 [60-290]	150 [85-271]	0.68
Intact PTH (pg/mL)	124 [55-212]	135 [63-241]	0.74
TRACP-5b (mU/dL)	423 [297-716]	547 [369-821]	0.28
Bone Mineral Density (DEXA)			
Lumbar Spine (T score)	-1.86±1.66	-2.29±1.51	0.19
(BMD (g/cm²))	0.82±0.21	0.76±0.18	0.14
Femoral Neck (T score)	-2.57±0.89	-2.38±1.08	0.33
(BMD (g/cm²))	0.52±0.11	0.55±0.14	0.29
Distal Radius (T score)	-2.66±2.33	-2.86±2.15	0.69
(BMD (g/cm²))	0.53±0.12	0.53±0.13	0.81
Active vitamin D	97.7%	87.8%	0.06
Calcium carbonate	61.4%	51.4%	0.30
Bisphosphonate	11.1%	1.4%	0.02
Cinacalcet	40.9%	31.0%	0.28
Corticosteroid	8.9%	7.9%	0.85

Abbreviations: HD, dialysis; BMD, bone mineral density; eGFR, estimated glomerular filtration ratio; BAP, bone alkaline phosphatase; P1NP, procollagen type 1 amino-terminal propeptide; iPTH, intact parathyroid hormone; TRACP-5b, titrate-resistant acid phosphatase 5b

Supplementary table 4

Proportions of patients who increased dose of vitamin D and calcium carbonate

(a) Dialysis patients (n=121)

Vitamin D	Daily doses of calcium carbonate				Total
	Zero	0.5-<1.5g	1.5-<3.0g	$\geq 3.0g$	
Active, oral	84% (20%)	11% (11%)	45% (27%)	54% (8%)	49% (16%)
Active, injection	73% (18%)	67% (33%)	80% (20%)	33% (0%)	64% (16%)
No vitamin D	20% (0%)	0% (100%)	NA	75% (0%)	40% (10%)
Total	57% (18%)	23% (23%)	56% (25%)	53% (6%)	52% (16%)

(b) Non dialysis patients (n=203)

Vitamin D	Daily doses of calcium carbonate				Total
	Zero	0.5-<1.5g	1.5-<3.0g or Ca/VD/Mg tablets	$\geq 3.0g$	
Natural, oral	NA	NA	6% (0%)	NA	6% (0%)
Active, oral	19% (2%)	NA	17% (8%)	NA	19% (3%)
No vitamin D	22% (6%)	0% (0%)	NA	NA	21% (5%)
Total	19% (3%)	0% (0%)	7% (1%)	NA	14% (2%)

The percentage represents proportion of patients who increased dose of vitamin D and those who increased dose of CaCO₃ (in parentheses, italic) in each cell.

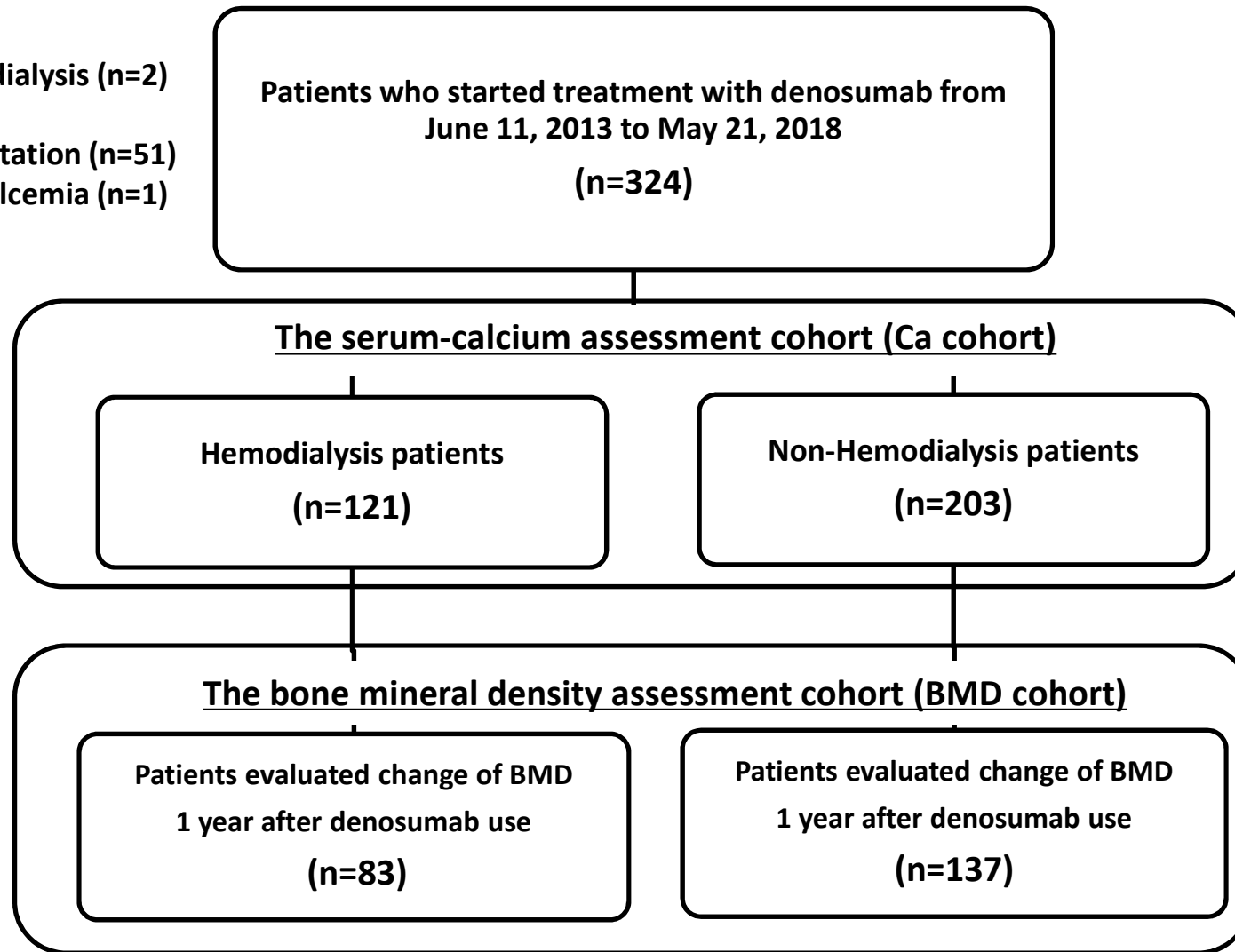
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Supplementary figure 1

Excluded

On peritoneal dialysis (n=2)
History of
renal transplantation (n=51)
Severe hypercalcemia (n=1)



BMD, bone mineral density