

Δράση της αγωγής οστεοπόρωσης στην πρόληψη καταγμάτων και ενσωμάτωση υλικών

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Υπεύθυνος Ιατρείου Οστεοπόρωσης



**ΓΕΝΙΚΟ ΝΟΣΟΚΟΜΕΙΟ
ΑΣΚΛΗΠΕΙΟ ΒΟΥΛΑΣ**



Επιστημονική Εκδήλωση
**Μεταβολικά νοσήματα
των οστών**

Βιβλιογραφική Ενημέρωση



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Anabolic agents: what is beyond osteoporosis?

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Abstract

Osteoporosis is a common skeletal disorder characterized by low bone mass, which leads to reduced bone strength and an increased risk of fractures. Anabolic agents have been shown to improve bone mass and decrease **fracture** risk in osteoporosis patients by directly stimulating osteoblasts to produce new bone. Currently, two anabolic agents are available in the USA: recombinantly produced **teriparatide** (TPTD), which is the fully active (1-34) amino active sequence of human parathyroid hormone (PTH), and abaloparatide (APT), a synthetic analog of parathyroid hormone-related peptide (PTHrP). At present, both agents are approved only for treatment of patients with osteoporosis at high risk of **fracture**.

Nonetheless, their anabolic properties have led to off-label application in additional settings which include spine fusion, osteonecrosis of the jaw, arthroplasty, and fracture healing. In this article, we summarize available scientific literature regarding the efficacy, effectiveness, and safety of TPTD in these off-label settings.

Στην πώρωση

Eur J Orthop Surg Traumatol. 2019; 29(1): 169–173. PMCID: PMC6331490 Published online 2018 Jun 21. doi: [10.1007/s00590-018-2269-9](https://doi.org/10.1007/s00590-018-2269-9) PMID: [29931529](https://pubmed.ncbi.nlm.nih.gov/29931529/)

Therapy of aseptic nonunions with parathyroid hormone

[I. Kastir](#),¹ [M. Reichardt](#),² [R. Andresen](#),¹ [S. Radmer](#),³ [G. Schröder](#),² [T. Westphal](#),⁴ [T. Mittlmeier](#),⁵ and [H. C. Schober](#)²

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.....In this prospective study, 32 patients with aseptic nonunions but without vitamin D deficiency (serum levels of > 30 ng/ml) and disturbances in the calcium phosphate metabolism, were treated with teriparatide (20µg/day) to investigate the effects of PTH on fracture healing.

Definitive healing of the nonunions following PTH treatment could be observed in 95% of the cases based on clinical and radiographical findings.

Table 1

Distribution of age, sex and fracture sites (mean \pm SD), as well as number of operations (median) and chronic diseases among patients (total number)

Age (years)	22–83 (54 \pm 15.9)
Sex (female/male)	17/15
Fracture sites	Pilon tibial ($n = 16$), malleolus ($n = 2$), distale crurale ($n = 2$), femoral ($n = 8$), metatarsale ($n = 1$), distal humerus ($n = 1$), olecranon ($n = 1$), distal radius ($n = 1$)
Operations	2 (0–14)
Chronic diseases (number of patients, including double counts in multimorbid patients)	Hypertension (12), obesity (7), diabetes mellitus type I (2), type II (1), chronic kidney disease stadium I (2), hyperthyreosis (3), hypothyreosis (3), autoimmune diseases (7)

Table 2

Results following PTH treatment

Time from fracture till PTH treatment (months)	9–84 (24.3 ± 17.8)
Treatment duration (weeks)	4–10 (7.3 ± 1.5)
Time to heal after PTH treatment (months) in 30 out of 32 patients	2–6 (4.1 ± 1.5)

The mean time between the initial fracture and the PTH treatment was 24.3 ± 17.8 months (9–84). After an average of 4.1 ± 1.5 (2–6) months after PTH treatment, 30 of the 32 patients experienced a stable osseous consolidation of the nonunion and regained full, pain-free weight-bearing capacity of the fractured extremity. These 30 patients were treated between 4 and 10 (7.3 ± 1.5) weeks with PTH until first signs of healing appeared (Table [2](#)). Usually, appearance of bone bridges and reduction in pain under dynamic load occurred simultaneously. Case examples are shown in Figs. [1](#) and [2](#).


“Η πώρωση των ψευδαρθρώσεων μετά από αγωγή με TRPD εμφανίστηκε στο 95% των περιπτώσεων”

- Ø **Απουσία ομάδας ελέγχου**
- Ø **Περισσότερες μελέτες με μεγαλύτερο αριθμό ασθενών για την τεκμηρίωση**
- Ø **Η θεραπεία με TRPD ίσως να αποτελεί εναλλακτική λύση στην αντιμετώπιση άσηπτων ψευδαρθρώσεων σε ασθενείς με φυσιολογική βιταμίνη D₃ όπου άλλες θεραπευτικές μέθοδοι έχουν αποτύχει**



Osteoporosis International (2018) 29:2659–2665 <https://doi.org/10.1007/s00198-018-4658-7>

The effects of teriparatide on acceleration of bone healing following atypical femoral fracture: comparison between daily and weekly administration

H. Tsuchie¹  & N. Miyakoshi¹ & K. Iba² & Y. Kasukawa¹ & K. Nozaka¹ & T. Dohke² & I. Kosukegawa² & T. Aizawa³ & S. Maekawa⁴ & H. Abe⁵ & M. Takeshima⁶ & T. Tomite⁷ & T. Segawa⁸ & K. Ouchi⁹ & H. Kinoshita¹⁰ & M. Suzuki¹¹ & T. Yamashita² & Y. Shimada¹

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International Osteoporosis Foundation and National Osteoporosis Foundation 2018

- § Πολυκεντρική μελέτη από 11 κέντρα της Ιαπωνίας
- § 45 AFF (32 pts 20μg/day TRPD και 13 pts 56.5μg/week TRPD)
- § 34 AFF είχαν προηγούμενη αντιοστεοκλαστική αγωγή (BP ή DNSMB)
- § 30 ήταν πλήρη AFF και 15 ατελή

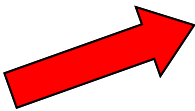
Table 1 Univariate analysis to compare daily and weekly groups

Variables	Daily (%)	Weekly (%)	<i>P</i>
Numbers	32	13	
Age (years)	78.8 ± 7.1	79.0 ± 7.0	0.915
Female/male	31/1	13/0	0.638
Right/left	21/11	8/5	0.933
Subtrochanteric/diaphyseal	2/30	1/12	0.623
Complete/incomplete	21//11	9/4	0.907
Bisphosphonate or denosumab usage			
Number	23 (71.9)	11 (84.6)	0.604
Duration (months)	68.9 ± 40.3	45.4 ± 28.7	0.175
Past history of fragility fractures	4 (12.5)	6 (46.2)	0.039
Presence of diabetes mellitus	1 (3.1)	0 (0)	0.626
Glucocorticoid usage	3 (9.4)	0 (0)	0.629
Surgical treatment	30 (93.8)	12 (92.3)	0.629
Intramedullary nail/locking plate	25/5	10/2	0.647
Follow-up period	26.6 ± 18.1	34.4 ± 24.6	0.246
Femoral curvature (angle)			
Lateral	11.5 ± 5.7	10.9 ± 5.9	0.761
Anterior	18.1 ± 6.4	16.1 ± 4.7	0.320
Healing time of fracture (months)	7.1 ± 5.2	9.3 ± 4.5	0.179

Χωρίς στατιστικά σημαντική διαφορά στο χρόνο πώρωσης μεταξύ των δύο ομάδων

Table 2 Univariate and multivariate analyses to compare daily and weekly groups of complete AFF patients

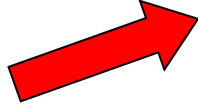
Variables	Daily (%)	Weekly (%)	Uni. <i>P</i>	Multi. <i>P</i>
Numbers	21	9		
Age (years)	78.6 ± 8.1	79.2 ± 7.9	0.841	
Female/male	20/1	9/0	0.657	
Right/left	15/6	7/2	0.928	
Subtrochanteric/diaphyseal	2/19	0/9	0.873	
Bisphosphonate or denosumab usage				
Number	13 (61.9)	8 (88.9)	0.021	0.149
Duration (months)	72.8 ± 47.2	47.5 ± 39.2	0.381	
Past history of fragility fractures	2 (9.5)	3 (33.3)	0.285	
Presence of diabetes mellitus	0 (0)	0 (0)	–	
Glucocorticoid usage	2 (9.5)	0 (0)	0.873	
Surgical treatment	21 (100)	9 (100)	–	
Intramedullary nail/locking plate	19/2	8/1	0.595	
Follow-up period	28.4 ± 19.0	33.6 ± 25.8	0.545	
Femoral curvature (angle)				
Lateral	11.1 ± 6.7	10.6 ± 6.9	0.828	
Anterior	19.3 ± 7.1	16.1 ± 4.3	0.220	
Healing time of fracture (months)	6.1 ± 4.0	10.1 ± 4.2	0.021	0.037



Ο χρόνος πώρωσης των καταγμάτων στην ομάδα της καθημερινής χορήγησης ήταν σημαντικά μικρότερος

Table 3 Univariate analysis to compare daily and weekly groups of incomplete AFF patients

Variables	Daily (%)	Weekly (%)	<i>P</i>
Numbers	11	4	
Age (years)	79.1 ± 4.7	78.5 ± 5.7	0.841
Female/male	11/0	9/0	–
Right/left	6/5	1/3	0.669
Subtrochanteric/diaphyseal	0/11	1/3	0.585
Bisphosphonate or denosumab usage			
Number	8 (76.9)	2 (50.0)	0.837
Duration (months)	65.8 ± 36.2	42.7 ± 12.1	0.311
Past history of fragility fractures	2 (15.4)	2 (50.0)	0.567
Presence of diabetes mellitus	1 (7.7)	0 (0)	0.919
Glucocorticoid usage	0 (0)	0 (0)	–
Surgical treatment	9 (84.6)	3(75.0)	0.662
Intramedullary nail/locking plate	6/3	2/1	0.480
Follow-up period	23.1 ± 17.2	36.3 ± 25.3	0.266
Femoral curvature (angle)			
Lateral	12.2 ± 3.3	11.8 ± 3.3	0.825
Anterior	15.6 ± 4.1	16.0 ± 6.2	0.896
Healing time of fracture (months)	8.8 ± 6.7	7.5 ± 5.4	0.731



Χωρίς στατιστικά σημαντική διαφορά στο χρόνο πώρωσης μεταξύ των δύο ομάδων

Table 4 Univariate analysis to compare daily and weekly groups only among patients prescribed bisphosphonate or denosumab before AFF onset

Variables	Daily (%)	Weekly (%)	<i>P</i>
Numbers	23	11	
Age (years)	78.4 ± 6.8	79.5 ± 7.4	0.681
Female/male	23/0	11/0	–
Right/left	14/9	6/5	0.983
Subtrochanteric/diaphyseal	1/22	1/10	0.819
Complete/incomplete	13//10	8/3	0.594
Past history of fragility fractures	3 (13.0)	4 (36.4)	0.263
Presence of diabetes mellitus	1 (4.3)	0 (0)	0.702
Glucocorticoid usage	3 (13.0)	0 (0)	0.543
Surgical treatment	21 (91.6)	11 (100)	0.819
Intramedullary nail/locking plate	17/4	9/2	0.677
Follow-up period	29.2 ± 17.8	32.5 ± 24.7	0.652
Femoral curvature (angle)			
Lateral	10.53 ± 5.3	10.5 ± 6.2	0.891
Anterior	15.4 ± 4.3	16.3 ± 4.3	0.599
Healing time of fracture (months)	6.8 ± 4.3	9.2 ± 4.2	0.137

Χωρίς στατιστικά σημαντική διαφορά της πώρωσης σε ασθενείς που είχαν λάβει προηγούμενα αγωγή (BP/DNSMB)

Table 5 Univariate analysis to compare daily and weekly groups of complete AFF only among patients prescribed bisphosphonate or denosumab before AFF onset

Variables	Daily (%)	Weekly (%)	<i>P</i>
Numbers	13	8	
Age (years)	78.1 ± 8.2	79.0 ± 8.4	0.806
Female/male	13/0	8/0	–
Right/left	9/4	6/2	0.831
Subtrochanteric/diaphyseal	1/12	0/8	0.802
Past history of fragility fractures	2 (15.4)	2 (25.0)	0.978
Presence of diabetes mellitus	0 (0)	0 (0)	–
Glucocorticoid usage	2 (15.4)	0 (0)	0.689
Surgical treatment	13 (100)	8 (100)	–
Intramedullary nail/locking plate	12/1	7/1	0.689
Follow-up period	33.9 ± 16.6	29.5 ± 24.3	0.625
Femoral curvature (angle)			
Lateral	9.0 ± 6.3	9.9 ± 7.0	0.771
Anterior	16.1 ± 5.4	15.5 ± 4.1	0.798
Healing time of fracture (months)	6.4 ± 4.2	9.4 ± 3.8	0.119

Χωρίς στατιστικά σημαντική διαφορά της πώρωσης σε ασθενείς που είχαν λάβει προηγούμενα αγωγή (BP/DNSMB)

Conclusions Daily teriparatide injections enhance bone union more than weekly injections in complete AFF patients.

“Η καθημερινή χορήγηση TRPD ενισχύει την πώρωση του κατάγματος περισσότερο από την εβδομαδιαία σε πλήρη AFF”

Journal of Orthopaedic Surgery

Does short-term weekly teriparatide improve healing in unstable intertrochanteric fractures?

Seung-Ju Kim, Hyun-Soo Park, Dong-Woo Lee, Jae-Won Lee

First Published October 8, 2018 | Research Article

<https://doi.org/10.1177/2309499018802485>

Department of Orthopaedics, Hanil General Hospital, Seoul, Korea

- Ø 96 ασθενείς αντιμετωπίστηκαν χειρουργικά για διατροchanτήριο κάταγμα με IMN (2014-2016)
- Ø 46 εκ των ασθενών έλαβαν εβδομαδιαίως 56.5 µg Τεριπαρατίδη sc
- Ø Εκτιμήθηκαν η **κλινική βαθμολόγηση**, **ακτινολογική πύρωση** και **ποσοστό επιπλοκών**

Table 1. The preoperative demographic data for groups 1 and 2 (group 1, placebo group; group 2, teriparatide group).

	Group 1 (50 hips)	Group 2 (46 hips)	<i>p</i> Value
Mean age in years (range)	82.3 (67.1 to 99.3)	81.6 (65.8 to 97.9)	0.544
Gender			0.973
Male	23	21	
Female	27	25	
Body weight (kg)	51.5 (37.1 to 81.5)	54.1 (39.1 to 80.8)	0.346
Right/left	20/30	22/24	0.440
BMD (T-score)	-3.2 (-4.6 to -2.6)	-3.4 (-4.9 to -2.6)	0.187
Hospital stay (days)	18.7 (12 to 52)	17.2 (12 to 45)	0.348

BMD: Bone mineral density.

ΚΛΙΝΙΚΗ ΒΑΘΜΟΛΟΓΗΣΗ

	Group 1 (50 hips)	Group 2 (46 hips)	<i>p</i> Value
HHS score 6-months after operation	62.2 (26–86)	65.4 (24–90)	0.515
VAS pain score 6-months after operation	22.8 (10–80)	24.5 (5–70)	0.331
VAS stiffness score 6-months after operation	30.8 (10–80)	32.2 (10–90)	0.346

HHS: Harris hip score; VAS: visual analog scale.

**Ανάλογα αποτελέσματα χωρίς
στατιστικά σημαντική διαφορά**

ΑΚΤΙΝΟΛΟΓΙΚΑ ΣΗΜΕΙΑ ΠΩΡΩΣΗΣ

Fracture healing	Group 1 (50 hips)	Group 2 (46 hips)	p Value
Week 4	3 (6.0%)	3 (6.5%)	0.916
Week 8	23 (46.0%)	25 (54.0%)	0.414
Week 12	42 (84.0%)	38 (83.0%)	0.855
Week 16	48 (96.0%)	46 (100%)	0.170
Week 20	48 (96.0%)	46 (100%)	0.170
Week 24	50 (100%)	46 (100%)	
ΜΟ πώρωσης	12.7 weeks	12.3 weeks	

§ Δεν υπήρχε διαφορά μεταξύ των δύο ομάδων στην πώρωση των καταγμάτων κατά τον τελευταίο επανέλεγχο (24 weeks)

§ Τα κατάγματα των ασθενών που έλαβαν TRPD είχαν την τάση να πωρώνονται πιο γρήγορα ωστόσο αυτό δεν ήταν στατιστικά σημαντικό

ΕΠΙΠΛΟΚΕΣ

Categories	Group 1 (50 hips)	Group 2 (46 hips)	<i>p</i> Value
Excessive screw sliding	1	1	0.744
Reduction loss	2	0	
Deep wound infection	1	0	
Superficial wound infection	2	2	
Malunion	4	5	
Overall complication	10 (20%)	8 (17%)	

**χωρίς
στατιστικά
σημαντική διαφορά**

Table 5. The outcomes of patients with severe osteoporosis (T-score less than -3.0).

	Group 1 (32 hips)	Group 2 (30 hips)	p Value
HHS score 6 months after operation	60.8 (26–82)	61.2 (24–80)	0.616
VAS pain score 6 months after operation	26.2 (20–80)	24.2 (20–70)	0.553
Time to radiologically union	12.9 weeks (SD 6.6)	12.1 weeks (SD 6.4)	0.146
Overall complication	7 (22%)	5 (16%)	0.604

HHS: Harris hip score; VAS: visual analog scale; SD: standard deviation.

χωρίς στατιστικά σημαντική διαφορά

ΣΥΜΠΕΡΑΣΜΑ

- q **Our study has some limitations.**
- q **First, since our study is a retrospective review with a small population, the conclusions from the results are limited.**
- q **In conclusion, with the patients available, short-term teriparatide did not decrease pain, improve radiographic signs of fracture healing, or decrease postoperative complication rate compared with the placebo in intertrochanteric fractures.**
- q **The effect of teriparatide on fracture healing in humans remains uncertain.**

Στην ενσωμάτωση



Contents lists available at [ScienceDirect](#)

Journal of Biomechanics

journal homepage: www.elsevier.com/locate/jbiomech
www.JBiomech.com



A long-lasting bisphosphonate partially protects periprosthetic bone, but does not enhance initial stability of uncemented femoral stems: A randomized placebo-controlled trial of women undergoing total hip arthroplasty



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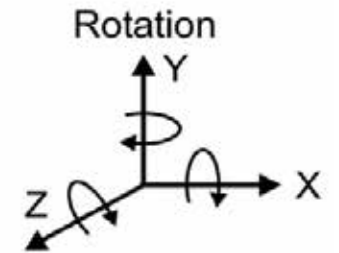
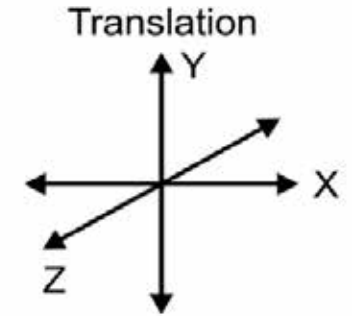
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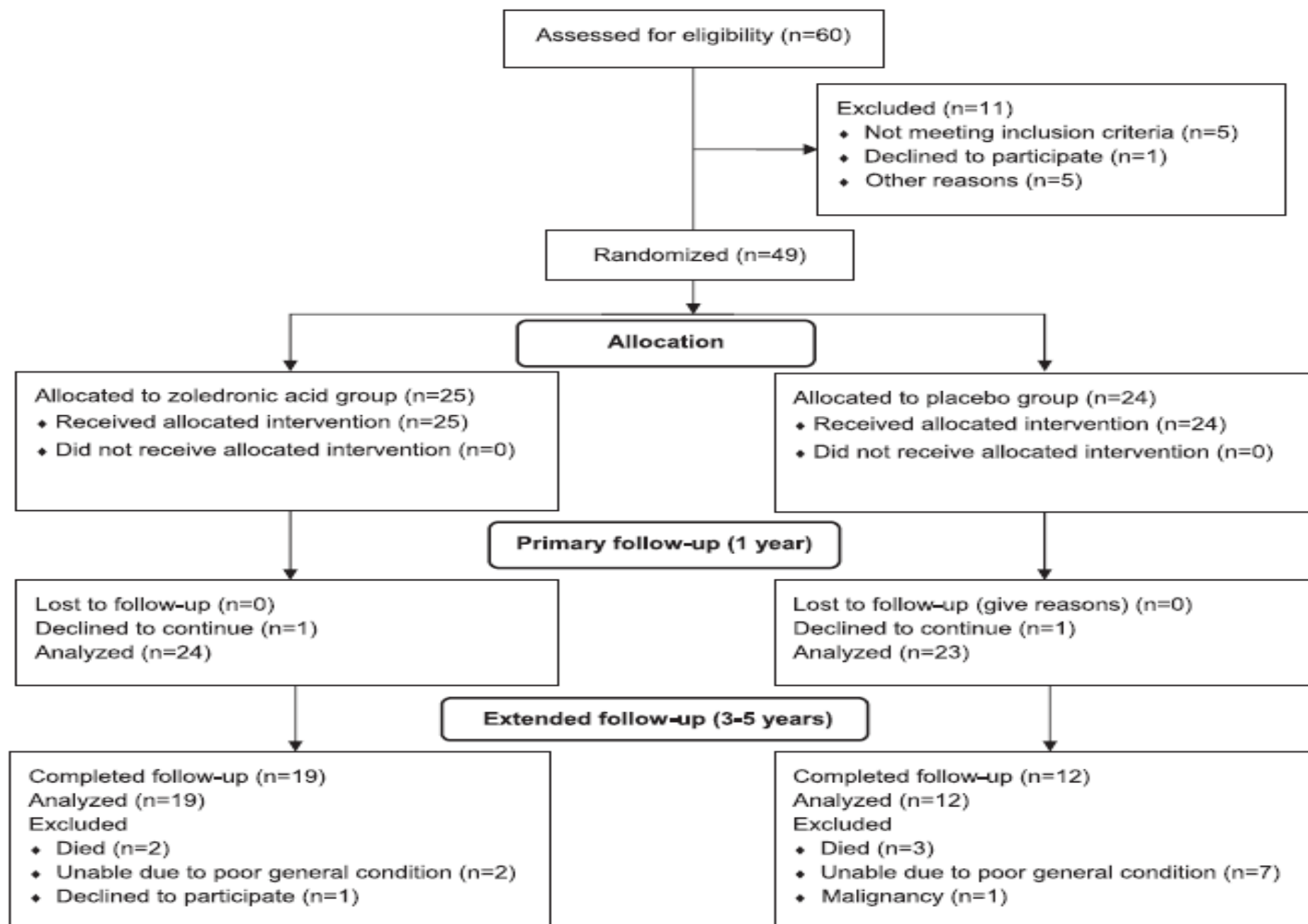
Article history:

Accepted 22 April 2018

Μακράς διάρκειας διφωσφονικό προστατεύει μερικώς το περιπροθετικό οστόύν, αλλά δεν ενισχύει την αρχική σταθεροποίηση των χωρίς τσιμέντο μηριαίων προθεμάτων

- Διπλή τυφλή τυχαιοποιημένη μελέτη με ομάδα ελέγχου
- 49 ασθενείς με Ο.Α. ισχίου με ολική αρθροπλαστική ισχίου χωρίς τσιμέντο
- Ένας χειρουργός, ίδιο υλικό
- 25 ασθενείς έλαβαν 5mg ζολενδρονικό οξύ άπαξ (ZA) κατά την νοσηλεία τους και οι 24 placebo
- Παρακολουθήθηκαν για σύνολο 4 ετών
- Στόχοι μελέτης:
 - § Απορρόφηση οστού περιπροθετικά
 - § Μετανάστευση μηριαίας πρόθεσης (μέσω Radiostereometric analysis - RSA)
 - § Λειτουργική αποκατάσταση





Baseline characteristics of the patients.

	Zoledronic acid (n = 25)	Placebo (n = 24)	P value [‡]
Age* (yr)	65.3 ± 8.0	71.0 ± 9.5	0.03
Height* (cm)	163.9 ± 6.1	162.8 ± 4.3	0.46
Weight* (kg)	76.9 ± 20.6	78.8 ± 12.6	0.70
Body mass index* (kg/m ²)	28.4 ± 6.5	29.8 ± 4.8	0.42
ASA classification			
1 or 2	12 (48)	10 (42)	0.39
3	13 (52)	14 (58)	
Bone mineral density* (g/cm ²), proximal femur			
Femoral neck	0.828 ± 0.121	0.790 ± 0.088	0.21
Total hip	0.932 ± 0.117	0.929 ± 0.127	0.95
Normal bone density (T-score > -1.0) §	16 (64)	16 (64)	
Osteopenia (-2.5 ≤ T-score ≤ -1.0) §	8 (32)	8 (36)	
Osteoporosis (T-score < -2.5) §	1 (4)	0 (0)	
Bone mineral density* (g/cm ²), L1-L4 vertebrae	1.058 ± 0.164	1.063 ± 0.229	0.91
Normal bone density (T-score > -1.0) §	14 (56)	18 (75)	
Osteopenia (-2.5 ≤ T-score ≤ -1.0) §	9 (36)	3 (12.5)	
Osteoporosis (T-score < -2.5) §	2 (8)	3 (12.5)	
Bone mineral density* (g/cm ²), distal radius	0.515 ± 0.061	0.495 ± 0.097	0.39
Normal bone density (T-score > -1.0) §	11 (44)	9 (38)	
Osteopenia (-2.5 ≤ T-score ≤ -1.0) §	11 (44)	8 (33)	
Osteoporosis (T-score < -2.5) §	3 (12)	7 (29)	
25(OH)D-vitamin* (nmol/l)	64.1 ± 21.1	57.0 ± 25.7	0.31
Parathyroid hormone* (PTH, ng/l)	53.0 ± 14.6	64.0 ± 29.5	0.11
PINP* (ng/ml)	44.3 ± 13.8	45.9 ± 17.9	0.67
CTX* (ng/ml)	0.45 ± 0.21	0.48 ± 0.29	0.88
TRACP-5b* (U/L)	3.26 ± 1.03	2.95 ± 1.53	0.42
Osteoclastin* (μg/l)	25.5 ± 10.0	26.1 ± 9.9	0.86
Harris hip score*	55.5 ± 18.8	43.2 ± 16.0	0.02
WOMAC score*	47.3 ± 21.1	50.6 ± 21.1	0.59
Walking speed* (m/s)	0.85 ± 30.8	0.81 ± 28.0	0.63
Walking activity* (steps/day)	2873 ± 2133	2717 ± 2710	0.84
Surgery			
Stem size 4/5/6	9/14/2	11/12/1	0.48
Surgery time* (min)	90 ± 16	87 ± 9	0.52

ΜΕΤΑΒΟΛΗ BMD

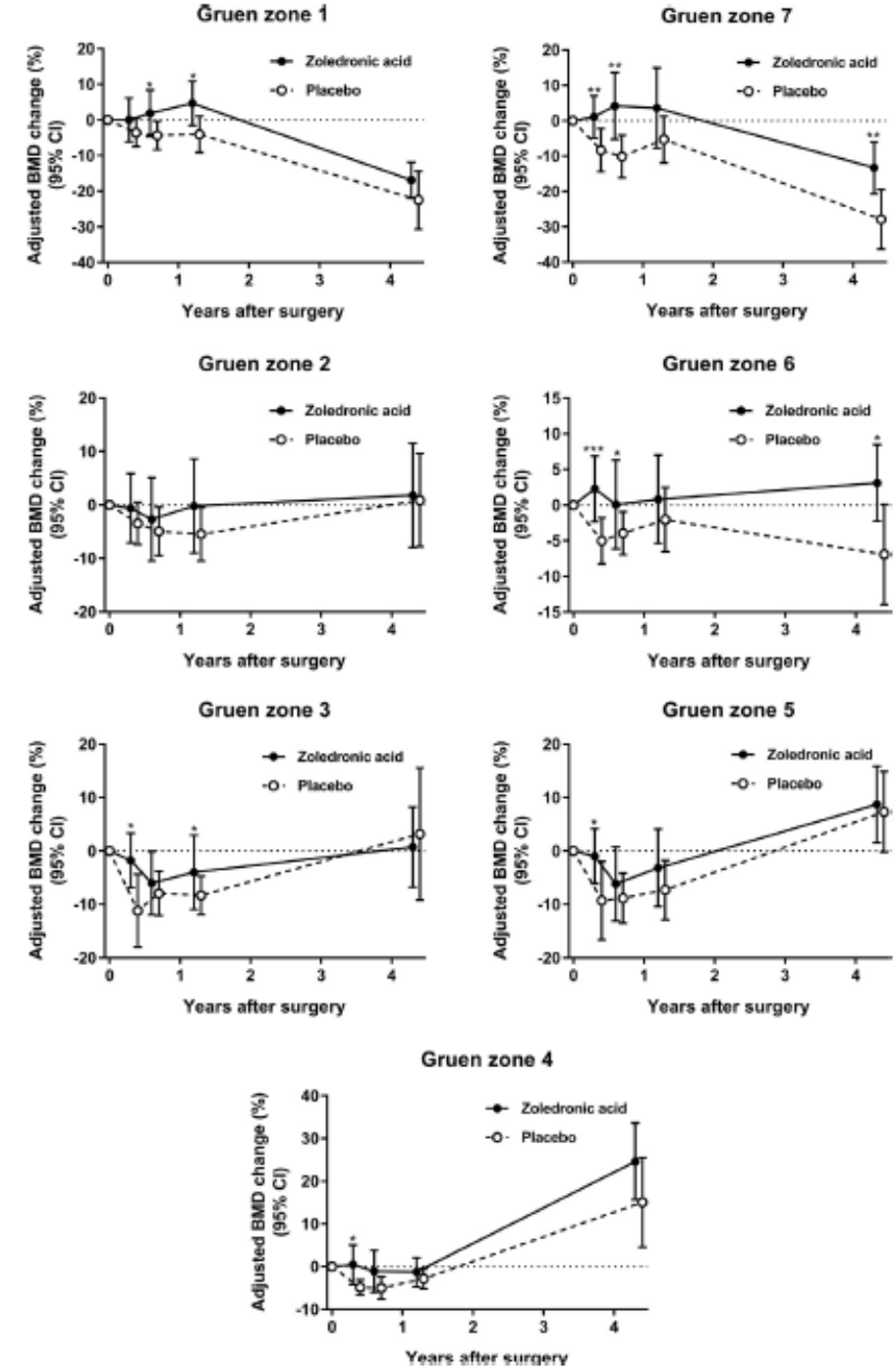
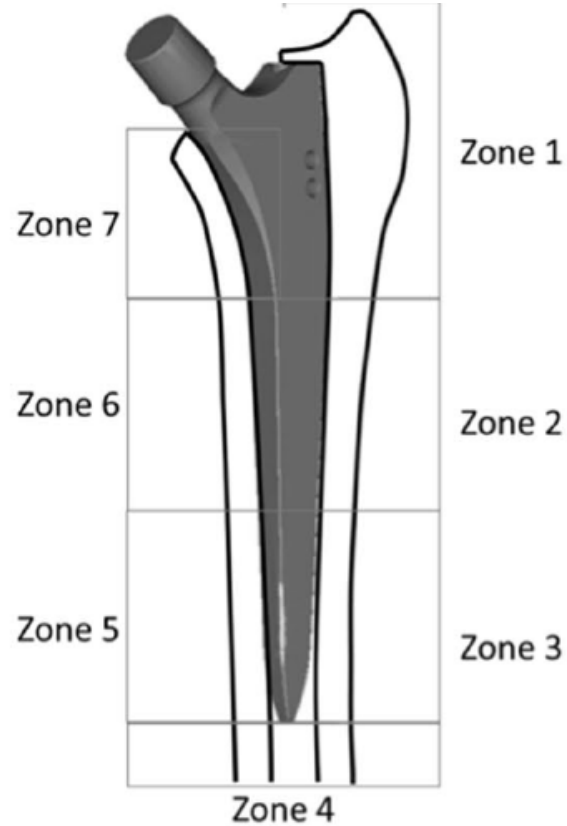
Στην ομάδα του ZA

-Είχαν στην ζώνη 7 9.4% μεγαλύτερη BMD στους 3 μήνες, 14.3% στους 6 μήνες, 8.9% στους 12 μήνες και 14.6% στα 4 χρόνια

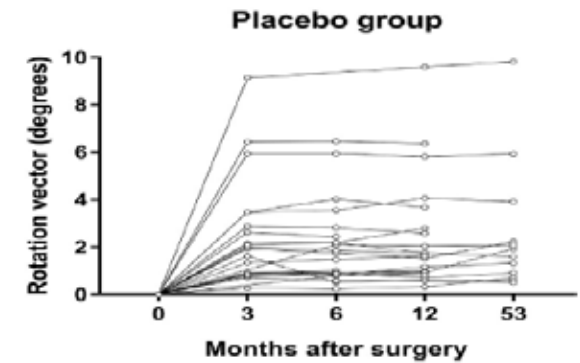
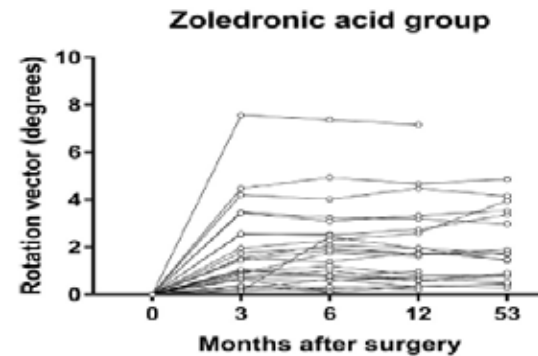
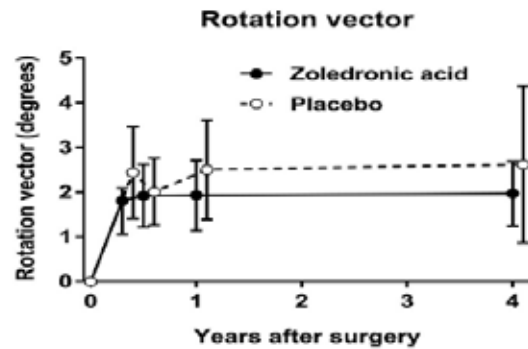
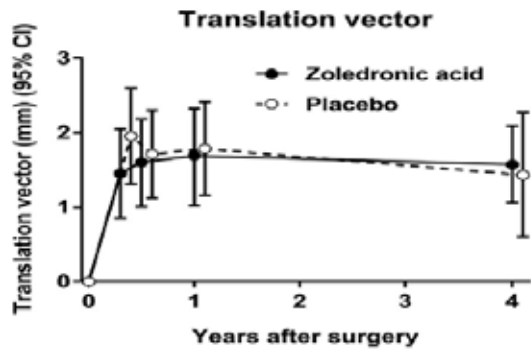
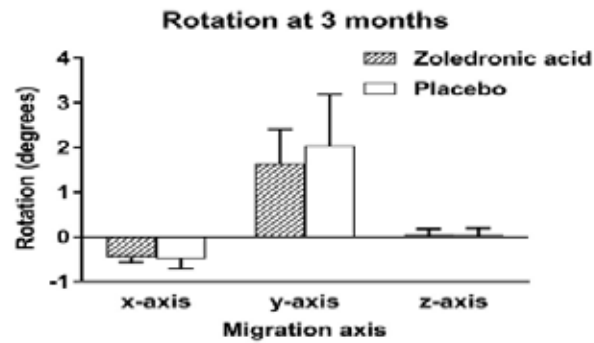
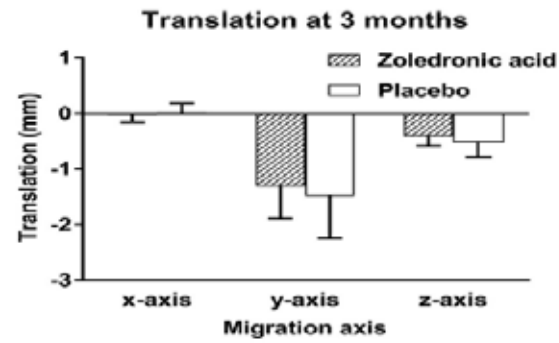
-Στην ζώνη 6 είχαν 10% μεγαλύτερη BMD 4 χρόνια μετεγχειρητικά

-Στην περιοχή του μείζονα τροχαντήρα (ζώνη 1), είχαν μείωση BMD κατά 16.9% έναντι 22.5% στην ομάδα ελέγχου στα 4 χρόνια

-2.2% αύξηση της BMD στην ΟΜΣΣ στους 12 μήνες

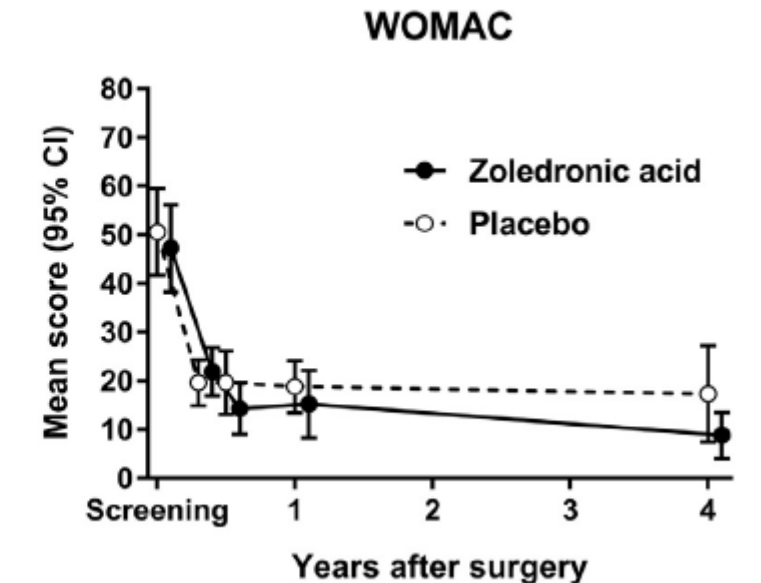
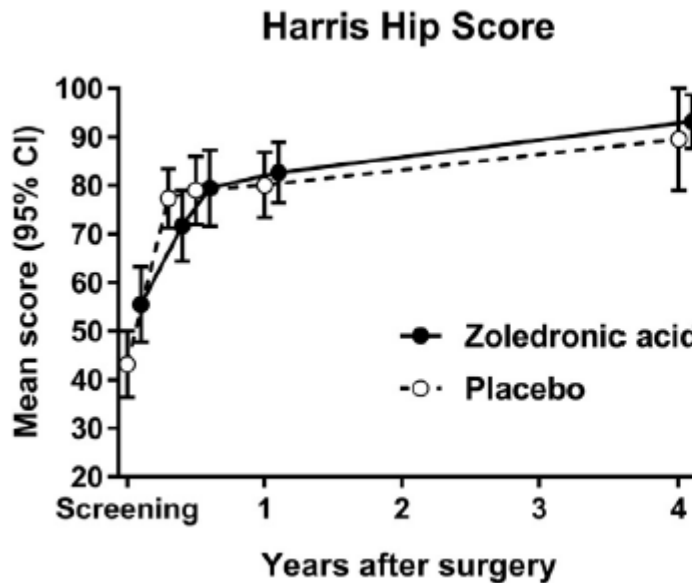
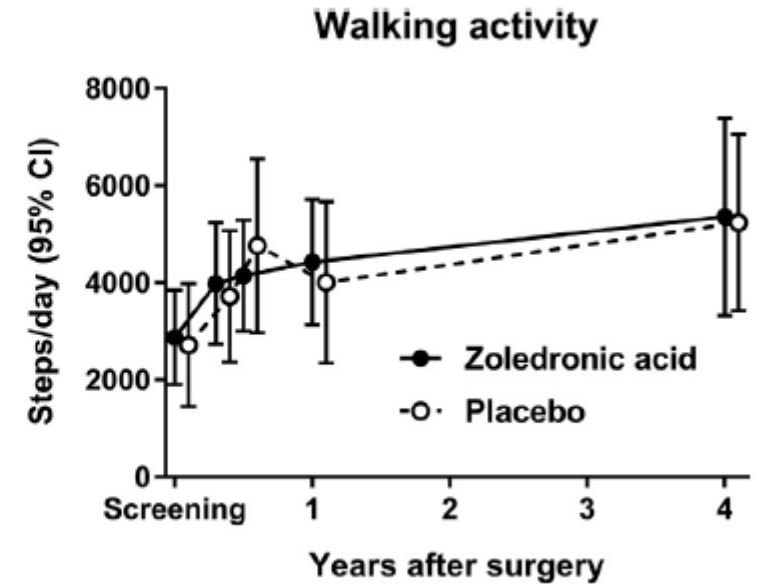
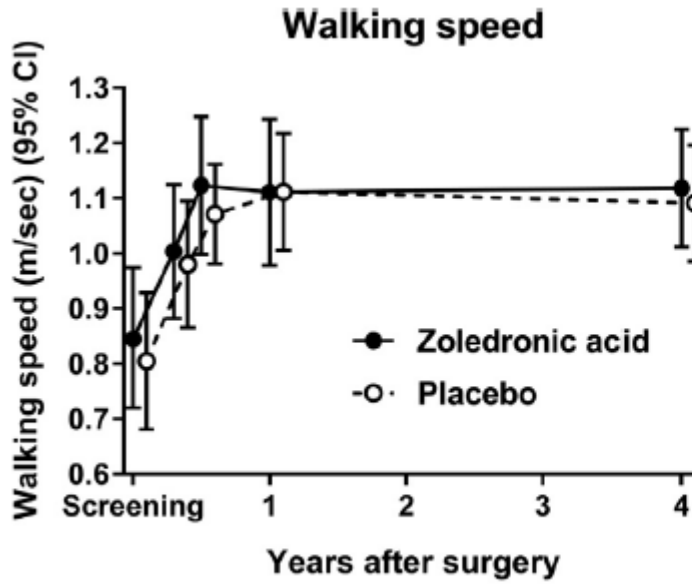


ΜΕΤΑΝΑΣΤΕΥΣΗ ΜΗΡΙΑΙΑΣ ΠΡΟΘΕΣΗΣ

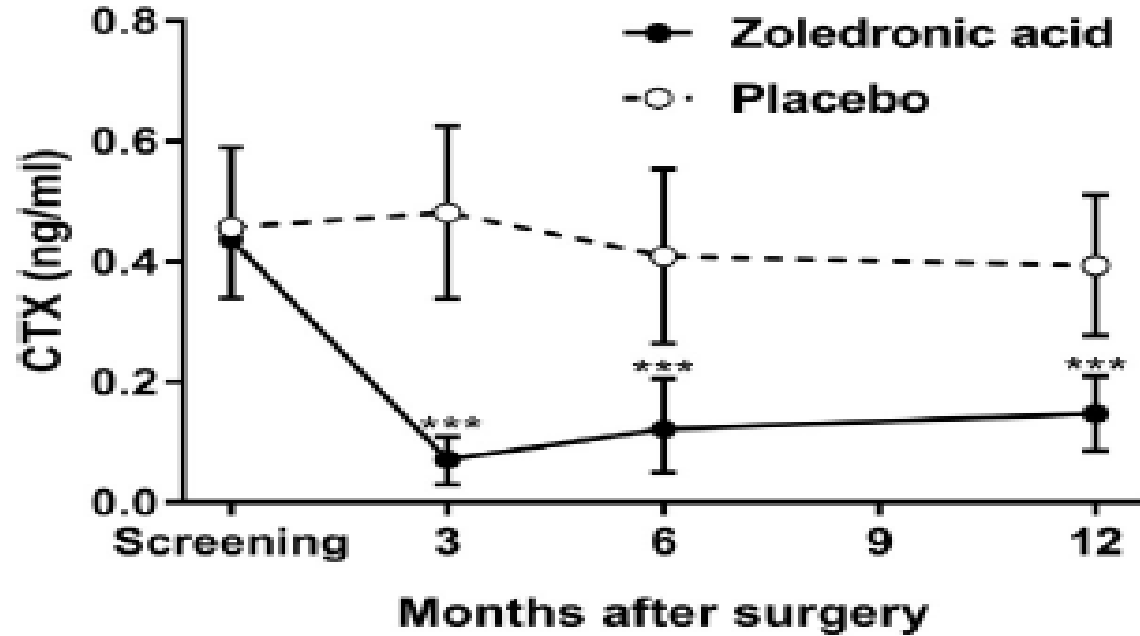


- Το ZA δεν είχε σημαντική επίπτωση στην μετανάστευση της μηριαίας πρόθεσης
- Ασχέτως της χορήγησης ZA, ασθενείς με φυσιολογική BMD είχαν ελάχιστη μετανάστευση της πρόθεσης σε αντίθεση με οστεοπενικούς ή οστεοπορωτικούς ασθενείς

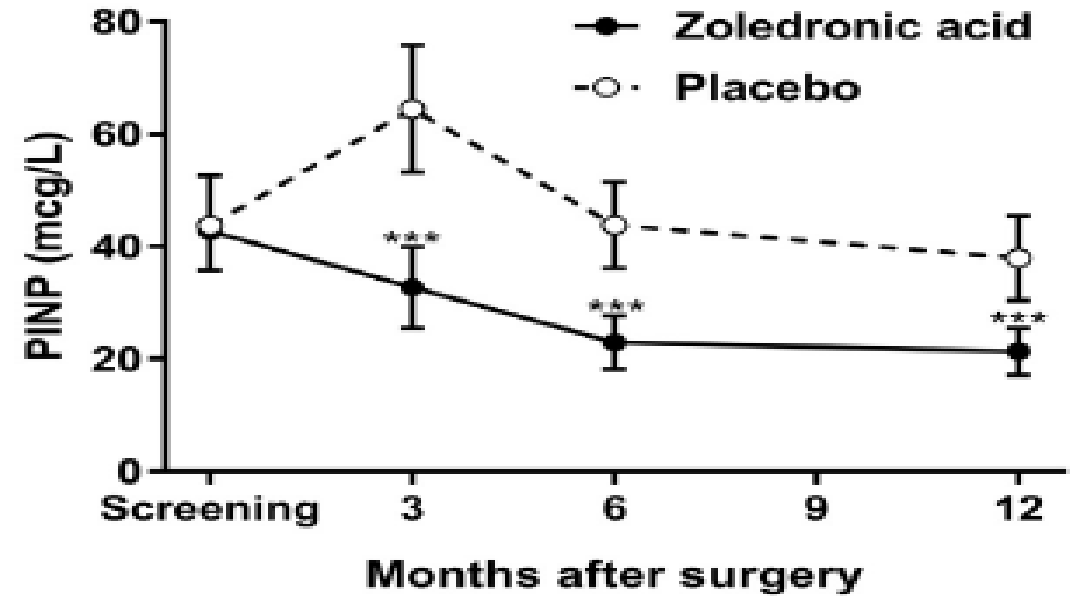
Δεν υπήρξε στατιστικά σημαντική διαφορά μεταξύ των δύο ομάδων στην λειτουργική αποκατάσταση



CTX



PINP




Οι ασθενείς του ZA είχαν μειωμένο CTX κατά 85% και τα επίπεδα του PINP και οστεοκαλσίνης ήταν μειωμένα σε σχέση με αυτά των ασθενών ελέγχου

Δεν υπήρξε καμία χαλάρωση υλικών
Δεν αναφέρθηκαν ανεπιθύμητες ενέργειες από την δράση του ZA

In conclusion, zoledronic acid did not enhance the initial stability of uncemented femoral stems. However, stem migration was temporary even in women with low BMD and did not interfere with osseointegration and implant survival. Zoledronic acid had a long-lasting, partially protective effect on periprosthetic BMD. Further large-scale prospective studies are warranted to evaluate the effects of antiresorptives on clinically relevant outcome measures, such as periprosthetic anti-fracture efficacy and implant survival, in patients with impaired bone quality. This applies both for cementless and cemented total hip arthroplasties.

“Το ΖΑ δεν ενίσχυσε την αρχική σταθερότητα των μηριαίων προθέσεων, ωστόσο είχε μια μακροχρόνια μερικώς προστατευτική επίδραση στην περιπροθετική BMD”

Restoration of proximal periprosthetic bone loss by denosumab in cementless total hip arthroplasty

Satoshi Nagoya¹  · Kenji Tateda^{1,2} · Shunichiro Okazaki¹ · Ima Kosukegawa² · Junya Shimizu² · Toshihiko Yamashita²

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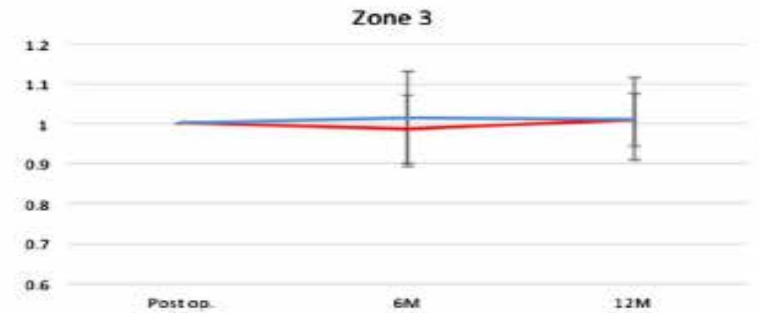
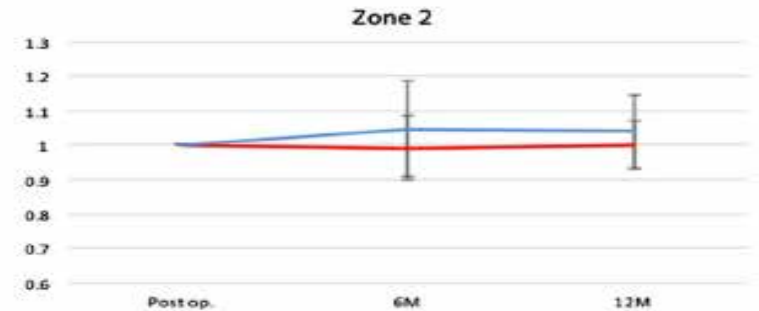
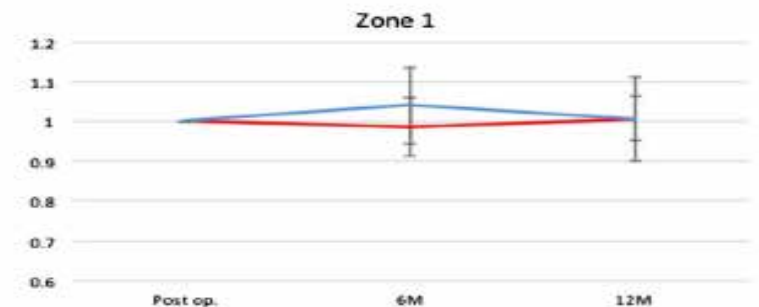
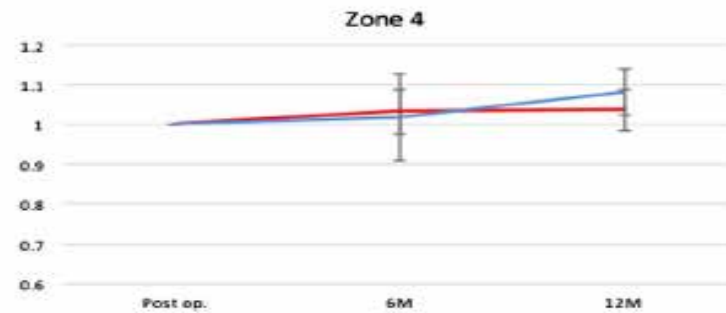
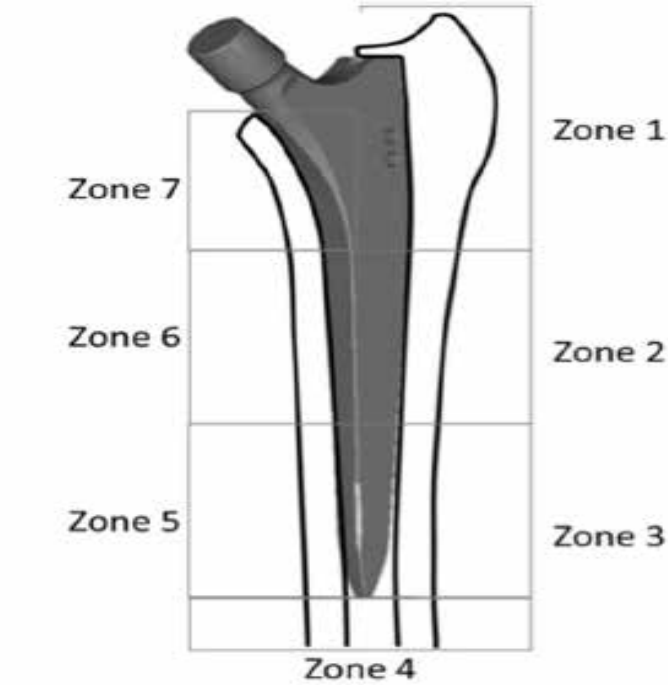
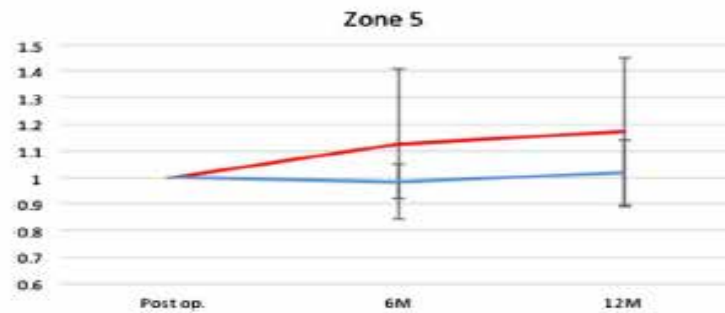
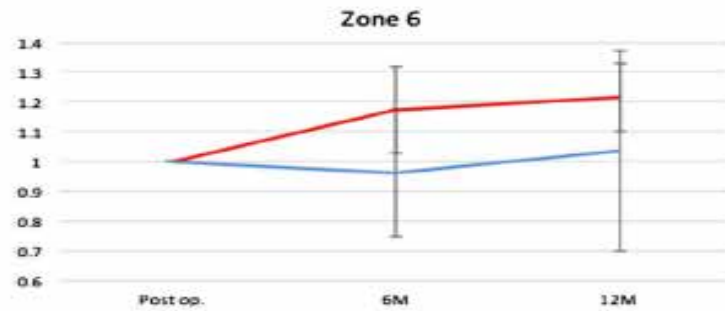
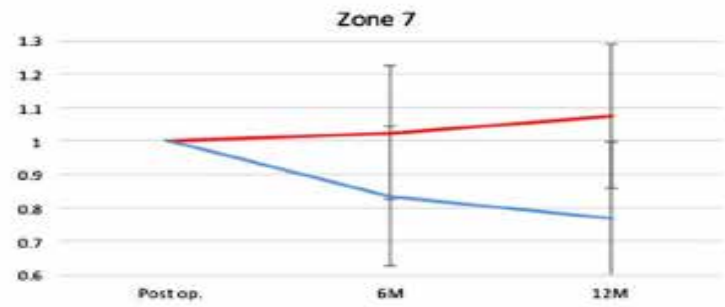
² Department of Orthopedic Surgery, Sapporo Medical University, South 1 West 16 Chuo-Ku, Sapporo 060-8543, Japan

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- 20 ασθενείς υπεβλήθησαν σε ολική αρθροπλαστική ισχίου χωρίς τσιμέντο
- 10 ασθενείς έλαβαν 60mg δενοσουμάμπης 1-2 εβδομάδες μετεγχειρητικά
- Έλεγχος με DXA στους 6 και 12 μήνες
- Στόχοι μελέτης:
 - § Απορρόφηση οστού περιπρωθετικά

ΜΕΤΑΒΟΛΗ BMD



- Ασθενείς που έλαβαν δανοσουμάμπη είχαν αύξηση της BMD στην ζώνη 7 κατά 2.5% στους 6 μήνες και επιπλέον 7.3% στο χρόνο ενώ οι ασθενείς ελέγχου είχαν μείωση BMD 16.5% στους 6 μήνες και 23.1% στο χρόνο

Conclusion Denosumab is one of a number of anti-osteoporotic agents to have a definitive effect on the restoration of proximal periprosthetic bone loss, especially in zone 7, after cementless THA. Denosumab contributed to the restoration of decreased periprosthetic BMD to normal levels. As the decrease in BMD in the proximal femur after THA is considered to be apparent at 6–12 months after surgery, it is believed that prevention of the deterioration of bone quality is important in the proximal femur immediately after cementless THA for elderly female patients with osteoporosis.

“Η δενοσουμάμπη είχε επίδραση στην αποκατάσταση του κεντρικού περιπρωθετικού οστού”



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Primary Arthroplasty

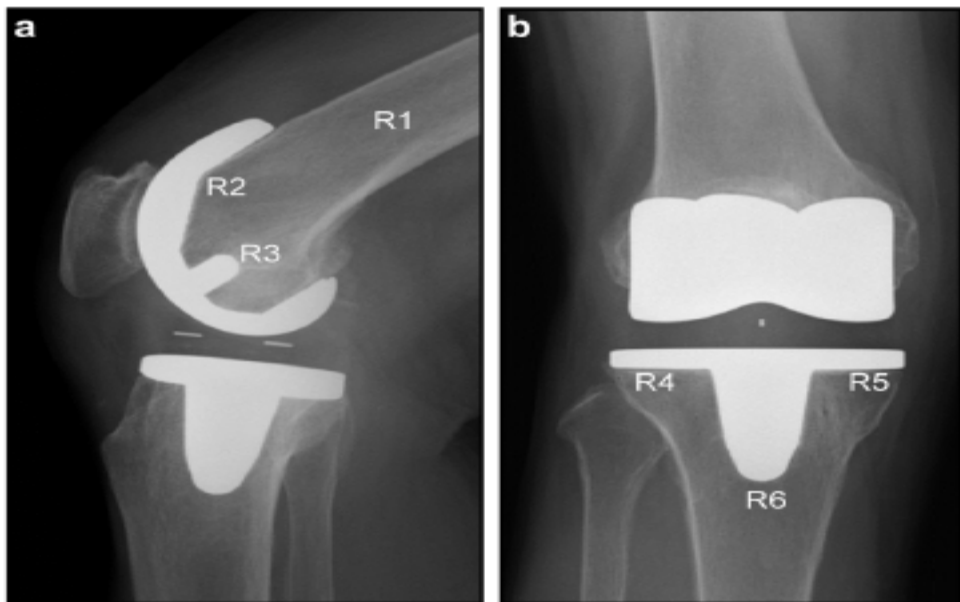
Teriparatide Administration Increases Periprosthetic Bone Mineral Density After Total Knee Arthroplasty: A Prospective Study

Tatsuya Suzuki MD , Fumio Sukezaki MD, PhD, Takashi Shibuki MD, PhD, Yoichi Toyoshima MD, PhD, Takashi Nagai MD, PhD, Katsunori Inagaki MD, PhD

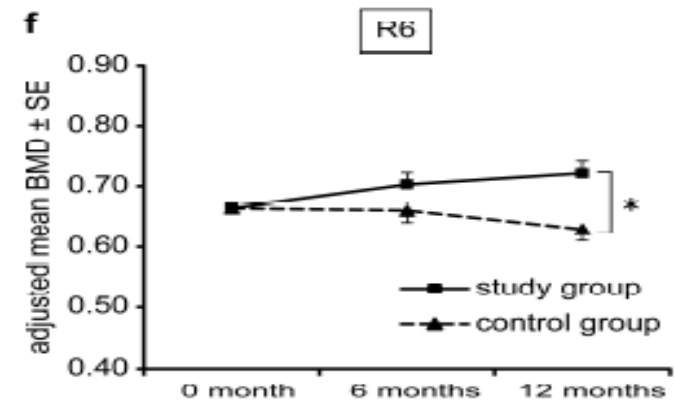
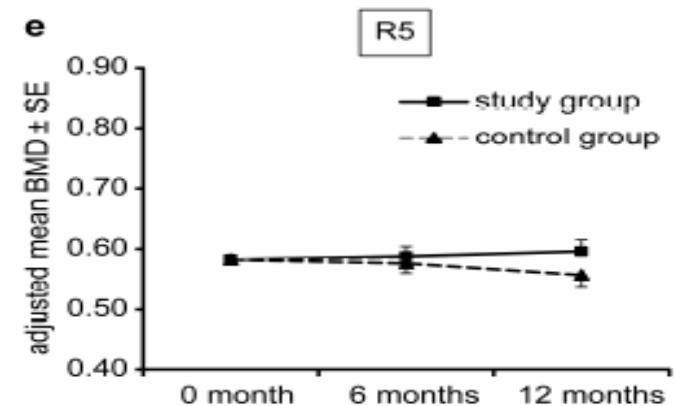
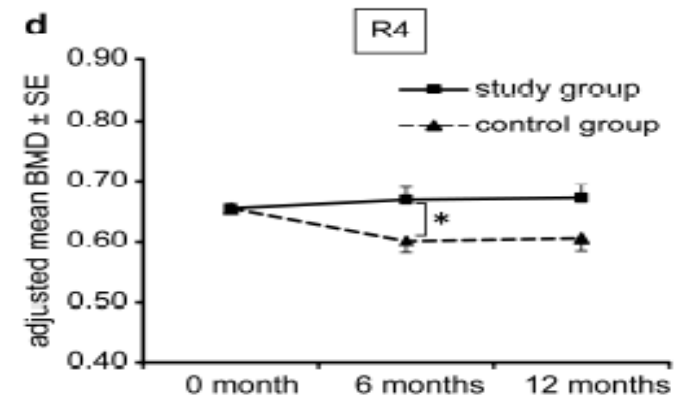
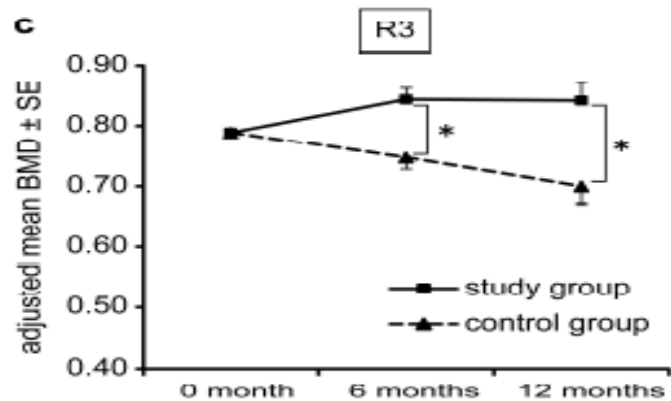
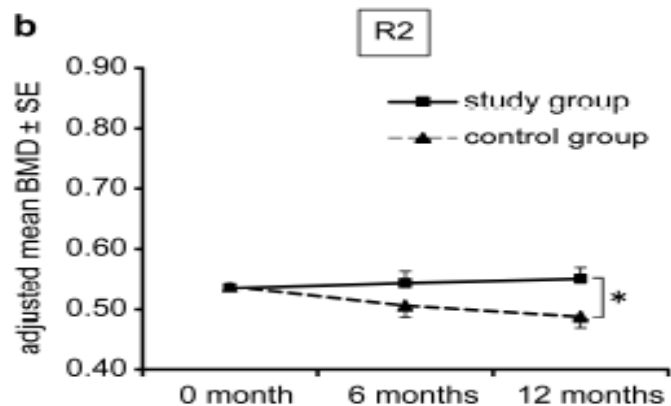
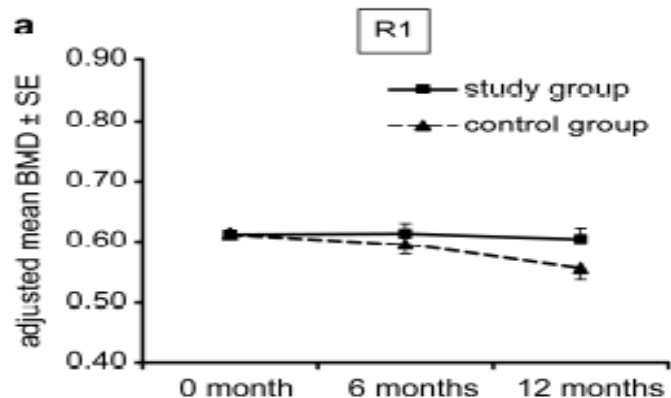
Department of Orthopedic Surgery, Showa University School of Medicine, Tokyo, Japan

- § 17 οστεοπορωτικοί ασθενείς (22 γόνατα) με ολική αρθροπλαστική γόνατος έλαβαν αγωγή με τεριπαρατίδη (56μg/εβδ. ή 20μg/ημέρα)
- § Υπήρξε παρόμοια ομάδα ελέγχου
- § Παρακολουθήθηκαν για σύνολο 1 έτος

Description		Study group	Control group	P-value
No. of patients		17	17	
No. of knees		22	22	
Gender		Only female	Only female	
Age (years)		78.9 (4.1)	79.1 (5.1)	0.87
Height (m)		1.48 (6.1)	1.49 (3.9)	0.69
Weight (kg)		54.3 (8.3)	56.3 (5.7)	0.37
BMI (kg/m ²)		24.5 (3.4)	25.3 (2.3)	0.45
Until administration or baseline from operation (months)		16.4 (13.0)	18.2 (15.8)	0.69
Teriparatide	Once-weekly	11 patients (14 knees)		
	Daily	6 patients (8 knees)		



Ασθενείς υπό τεριπαρατίδη είχαν αυξημένη BMD σε όλες τις ζώνες



Conclusions

Treatment with a 1-year course of teriparatide increased periprosthetic BMD in all regions of the femoral and tibial component after TKA in our study. Our findings suggest that teriparatide administration may be a reasonable option for osteoporotic patients to preserve or improve periprosthetic BMD after TKA. We recommend the administration of teriparatide to achieve better fixation in postmenopausal osteoporotic patients. However, the long-term efficacy of teriparatide after TKA remains unclear. Additional studies are required to determine whether further therapy after treatment with teriparatide will protect the knee over the long term.

“Η αγωγή για ένα χρόνο με τεριπαρατίδη αύξησε την BMD περιπροθετικά σε όλες τις περιοχές του μηριαίου και κνημιαίου προθέματος....Προτείνουμε την χορήγηση τεριπαρατίδης σε οστεοπορωτικούς ασθενείς για την καλύτερη ενσωμάτωση των υλικών”

Ευχαριστώ
για την προσοχή σας