

ΕΠΙΣΤΗΜΟΝΙΚΗ
ΕΚΔΗΛΩΣΗ ΕΕΜΜΟ



ΜΕΤΑΒΟΛΙΚΑ ΝΟΣΗΜΑΤΑ ΤΩΝ ΟΣΤΩΝ

Βιβλιογραφική Ενημέρωση

17-19 ΜΑΡΤΙΟΥ 2023
Grand Serai Congress Hotel
Ιωάννινα



Σπύρος Ν Νίκας

Ρευματολόγος

Ιωάννινα

ΕΠΙΣΤΗΜΟΝΙΚΗ
ΕΚΔΗΛΩΣΗ



ΕΕΜΜΟ

Σύγκρουση συμφερόντων

ΜΕΤΑΒΟΛΙΚΑ ΝΟΣΗΜΑΤΑ ΤΩΝ ΟΣΤΩΝ

Βιβλιογραφική Ενημέρωση

Καμία

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Arthritis & Rheumatology

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ABSTRACT SUPPLEMENT

ACR Convergence 2022

November 10–14, 2022

Philadelphia, PA

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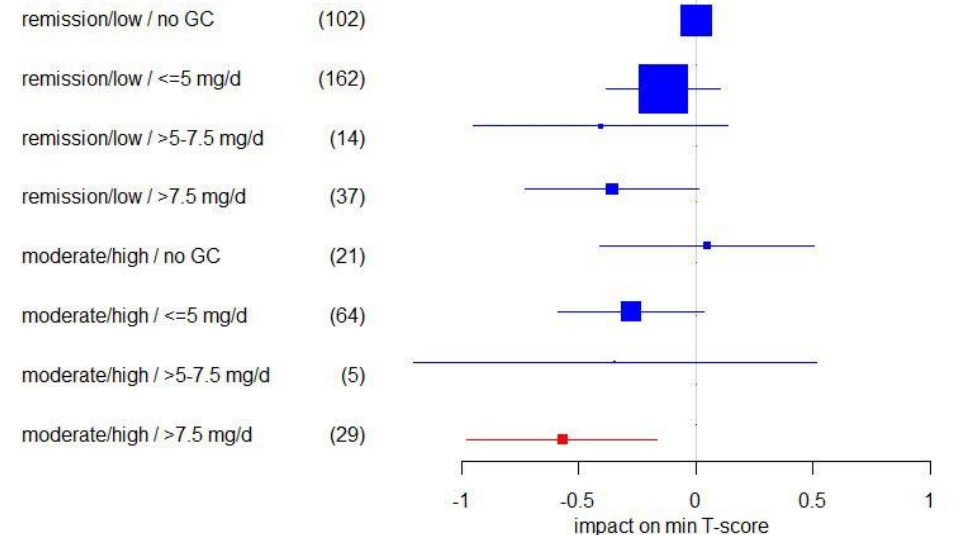
Μικρές δόσεις κορτιζόνης & BMD

- Rh-GIOP is a **prospective** observational cohort study
- 1.066 patients with iRMD were analyzed
- GC doses of **< 5** mg prednisone equivalent per day
 - cumulative dose and duration of GC therapy were **not** associated with *negative* effects on BMD
 - dampening of inflammation by GC
- Dosages **≥5** mg/d => **lost** their negative association with BMD **after** adjustment for confounders
- **exactly 5** mg/d => **no** negative effect was seen
- **RA**: GC doses **>7.5** mg per day => **negative** association with BMD overall
 - but this effect seemed to be specific **only** to patients with moderate or high **disease activity** (DAS28-CRP >3.2)

ABSTRACT NUMBER: 1318

Low-Dose Prednisolone (≤ 5 Mg/d) Is Not Associated with Deleterious Effects on Bone Mineral Density: Baseline Findings in a Cohort of Rheumatic Disease Patients with Prior Glucocorticoid Exposure

Adjusted for all significant parameters (min-T score model)



Τι λέει η βιβλιογραφία (BMD)

Review Article | [Published: October 2002](#)

The Epidemiology of Corticosteroid-Induced Osteoporosis: a Meta-analysis

[T. P. van Staa](#), [T. P. van Staa](#), [T. P. van Staa](#), [H. G. M. Leufkens](#) & [C. Cooper](#)


[Osteoporosis International](#) **13**, 777–787 (2002) | [Cite this article](#)

3864 Accesses | **851** Citations | **39** Altmetric | [Metrics](#)

oral corticosteroid treatment using
more than 5 mg
(of prednisolone or equivalent) daily leads to a
reduction
in bone mineral density

Τι λέει η βιβλιογραφία (κάταγμα)

JOURNAL ARTICLE

Low-dose oral glucocorticoid therapy and risk of osteoporotic fractures in patients with rheumatoid arthritis: a cohort study using the Clinical Practice Research Datalink 

Shahab Abtahi, Johanna H M Driessen, Andrea M Burden, Patrick C Souverein ,
Joop P van den Bergh, Tjeerd P van Staa, Annelies Boonen, Frank de Vries

Rheumatology, Volume 61, Issue 4, April 2022, Pages 1448–1458,

<https://doi.org/10.1093/rheumatology/keab548>

Published: 13 July 2021 [Article history](#) ▼

≤7.5 mg prednisolone equivalent dose/day in patients with RA was associated with an **increased** risk of **clinical vertebral** fracture (adjusted hazard ratio **1.59**, 95% CI 1.11, 2.29)

Similar findings were revealed for lower daily doses, i.e. ≤5.0 mg PED/day and ≤2.5 mg PED/day

observational studies have reported **higher fracture** rates with **low-dose** oral GC use [i.e. ≤7.5 mg prednisolone equivalent dose (PED) per day] in **RA** compared with non-use

Balasubramanian A, Wade SW, Adler RA et al. Glucocorticoid exposure and fracture risk in a cohort of US patients with selected conditions. J Bone Miner Res 2018;33:1881–8.

Robinson DE, van Staa TP, Dennison EM, Cooper C, Dixon WG. The limitations of using simple definitions of glucocorticoid exposure to predict fracture risk: a cohort study. Bone 2018;117:83–90.

Amiche MA, Abtahi S, Driessen JHM et al. Impact of cumulative exposure to high-dose oral glucocorticoids on fracture risk in Denmark: a population-based case-control study. Arch Osteoporos 2018;13:30.

Τι λέει η βιβλιογραφία (κάταγμα)

[RMD Open](#). 2015; 1(1): e000014.

Published online 2015 Apr 8. doi: [10.1136/rmdopen-2014-000014](https://doi.org/10.1136/rmdopen-2014-000014)

Review

Glucocorticoid-induced osteoporosis

[Karine Briot](#) and [Christian Roux](#)

In epidemiological studies, the **increased** risk of **fractures** is observed even at **low** doses of prednisone, that is, **2.5–5** mg per day

ROM vs DEN σε GIOP

- daily prednisolone dose of ≥ 5 mg/day for ≥ 12 months and had moderate/high **risk** of osteoporotic fracture (*history of fragility fracture, DEXA T score ≤ -2.5 [age ≥ 40 years] or Z scores ≤ -3.0 [age < 40 years] or high risk of 10-year major fracture estimated by FRAX) were included*
- **ROMO** (210mg SC monthly) or **DEN** (60mg SC every 6 months) for 12 months => DEN (60mg every 6 months) for 12 more months in both arms
- ✓ **70** patients recruited
- ✓ Oral bisphosphonates were being used in 33 (**47%**) patients prior to first dose of the study drugs
- ✓ ROMO-treated patients had **lower** hip/femoral neck BMD and serum vitamin D3 levels than those treated with DEN

ABSTRACT NUMBER: L11

Romozosumab versus Denosumab in High-risk Patients with Glucocorticoid-induced Osteoporosis: A Pilot Randomized Controlled Trial

Wai Han Ma¹, Chi Chiu Mok², Ling Yin Ho², Kar Li Chan³, Sau Mei Tse⁴ and Sammy Chen⁵, ¹Department of Nuclear Medicine, Hong Kong, Hong Kong, ²Tuen Mun Hospital, Hong Kong, Hong Kong, ³Tuen Mun Hospital, Tsing Yi, Hong Kong, ⁴Department of Medicine, Tuen Mun Hospital, Hong Kong, Hong Kong, ⁵Department of Pathology, Hong Kong, Hong Kong

Meeting: ACR Convergence 2022

ROM vs DEN σε GIOP

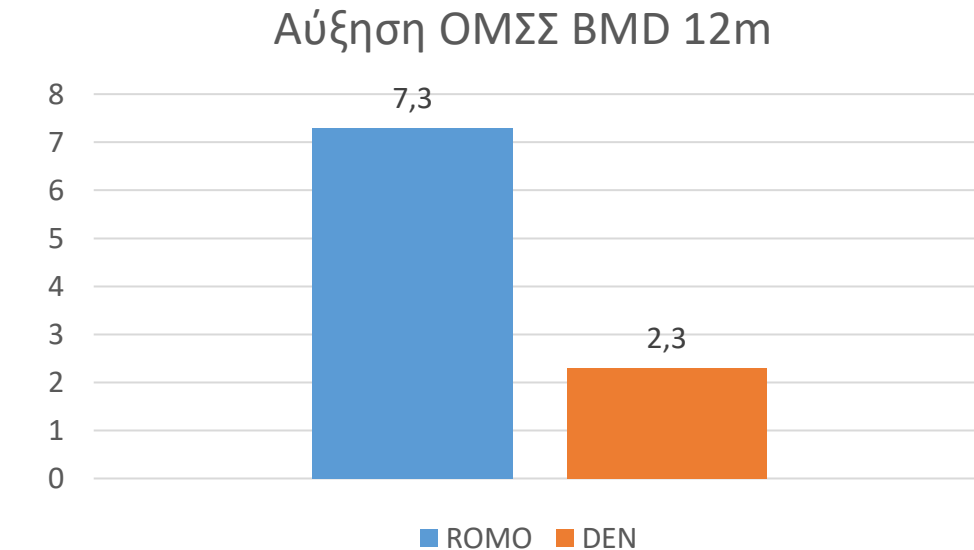
- At month 12, a significant increase in **spine** BMD was observed in both the **ROMO (+7.3±4.5%; p< 0.001)** and **DEN (+2.3±3.1%; p< 0.001)** groups of patients
- The inter-group **difference** in **spine** BMD at month 12 was statistically **significant** after **adjustment** for baseline BMD values, age, sex, osteoporosis risk factors and the cumulative prednisolone doses in 12 months (p < 0.001)
- The corresponding increase in **hip** BMD were **+1.6%±3.3%** (p=0.01) in the ROMO group and **+1.6%±2.6%** (p=0.003) in the DEN group.
- In **DEN**-treated patients, **both** serum CTX (-34.7±54.8%; p=0.002) and P1NP (-35.1±43.3%; p< 0.001) dropped significantly from baseline to month 12.
- However, in the ROMO group, a *non-significant drop in CTX* (-18.1±76.9%; p=0.18) but *increase in P1NP* (+1.7±70.3%; p=0.89) was observed

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Romozosumab versus Denosumab in High-risk Patients with Glucocorticoid-induced Osteoporosis: A Pilot Randomized Controlled Trial

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Meeting: ACR Convergence 2022



ROM vs DEN σε GIOP

- Only one new vertebral fracture developed in the ROMO group at 12m
- The commonest adverse event (AE) was self-limiting injection **site pain/redness**, which was significantly more common in **ROMO-treated** patients
- Post-injection **musculoskeletal pain** was reported in 2 patients in the ROMO and 3 patients in the DEN group
- Mild hypocalcemia and hypercalcemia were observed in 2 DEN-treated patients
- No serious AEs

ABSTRACT NUMBER: L11

Romozosumab versus Denosumab in High-risk Patients with Glucocorticoid-induced Osteoporosis: A Pilot Randomized Controlled Trial

Wai Han Ma¹, **Chi Chiu Mok**², Ling Yin Ho², Kar Li Chan³, Sau Mei Tse⁴ and Sammy Chen⁵, ¹Department of Nuclear Medicine, Hong Kong, Hong Kong, ²Tuen Mun Hospital, Hong Kong, Hong Kong, ³Tuen Mun Hospital, Tsing Yi, Hong Kong, ⁴Department of Medicine, Tuen Mun Hospital, Hong Kong, Hong Kong, ⁵Department of Pathology, Hong Kong, Hong Kong

Meeting: **ACR Convergence 2022**

Έχει νόημα η χορήγηση ROMO στην GIOP?

- The mechanisms that account for GC-induced **inhibition of bone formation** include the reduction of lifespan and activity of **osteoblasts**
- GCs alter the function of bone-forming cells through multiple pathways
 - reduction of osteoblast proliferation through its suppression of growth factors BMP2 and TGFβ1
 - **up-regulation of the Wnt antagonists (Dkk-1, Wif-1, and Sost)** and
 - down-regulation of the Wnt receptor complex (frizzled 4, 7, Dsh1, and Axin1) which can suppress osteoblast differentiation (alkaline phosphatase, akp2), maturation (osteocalcin), and activity
- GCs may also directly affect **osteocytes** as genes primarily expressed in osteocytes, Dmp1, Phex, and Sost

DEN Vs ΔΦ – κάταγμα

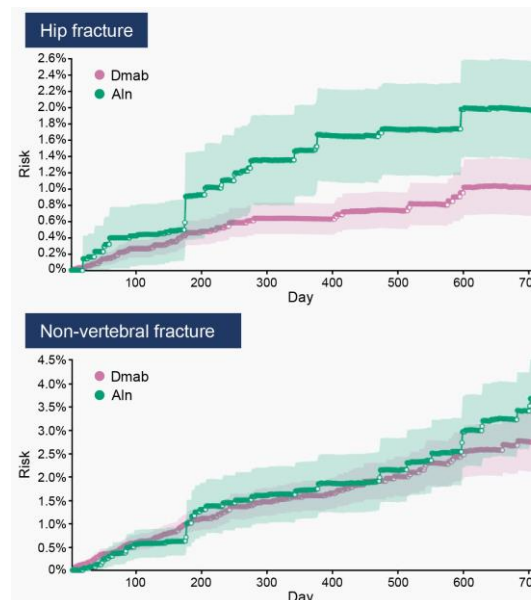
- real-world effectiveness of Dmab compared with alendronate (Aln) in reducing fracture risk among commercially-insured (**MEDICARE**) **postmenopausal** women in the U.S. treated for OP (2012 to 2019)
- When comparing Dmab (n=13,871) with Aln (n=8,747) in patients **over the entire** study period (2012–2019)
 - **no differences** in the incidence of **fracture** outcomes were observed
- among patients initiating treatment in **2015 or later** (ie, recent data cohort), Dmab users had a
 - **48% reduction in hip** (RR=0.52, 95% CI: 0.28–0.77)
 - **25% reduction in non-vertebral** (RR=0.75; 95% CI: 0.50–0.99) fracture risk , compared with Aln users

ABSTRACT NUMBER: 0576

Comparative Effectiveness of Osteoporosis (OP) Therapies Among a Population of Postmenopausal (PM) Women in the United States (U.S.)

Min Kim¹, Leah J McGrath², David Pritchard², Peter Samai², Jay Lin¹, Robert Kees Stad³, Leslie Spangler¹, Michele McDermott¹, Brian D Bradbury⁴ and M Alan Brookhart²,
¹Amgen, Inc., Thousand Oaks, CA, ²NoviSci, Inc., Durham, NC, ³Amgen Inc., Zug, Switzerland, ⁴Amgen Inc., 1 Amgen Center Drive

Meeting: ACR Convergence 2022



Cumulative Incidence of Fracture Over a 24-month Follow-up Using Recent Data (> 2015): Dmab vs Aln

DEN Vs $\Delta\Phi$ – κάταγμα

- **clinically meaningful reduction** in fractures for patients who remained adherent to Dmab compared with Aln through **24 months**
- once the effects of preferential prescribing of Dmab to **high-risk** patients in the **early** years after drug approval were **removed**

ABSTRACT NUMBER: 0576

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Meeting: ACR Convergence 2022

Τι λέει η βιβλιογραφία ?

Research Article | Clinical Review

Denosumab versus Bisphosphonates for Reducing Fractures in Postmenopausal Women with Osteoporosis: A Meta-Analysis

Karissa A. Thal, Matthew Nudy, Eileen M. Moser and Andrew J. Foy
The Journal of the American Board of Family Medicine [January 2023](#), jabfm.20

Seven **RCTs** were included.

Denosumab was **not** associated with a reduction in clinical or osteoporotic fractures compared with bisphosphonates



Current evidence suggested **no benefit of denosumab** for reducing risk of fracture than bisphosphonates

ABSTRACT NUMBER: 1314

Response Rates for Lumbar Spine, Total Hip, and Femoral Neck Bone Mineral Density with Abaloparatide in Men: Results from the ATOM Study

Ruban Dhaliwal¹, David Kendler², Kenneth Saag³, Steven Ing⁴, Andrea Singer⁵, Robert Adler⁶, **Leny Pearman**⁷, Yamei Wang⁷ and Bruce Mitlak⁸, ¹SUNY Upstate Medical University, Syracuse, NY, ²University of British Columbia, Vancouver, BC, Canada, ³University of Alabama at Birmingham, Birmingham, AL, ⁴Ohio State University Wexner Medical Center, Columbus, OH, ⁵MedStar Georgetown University Hospital, Washington, DC, ⁶Hunter Holmes McGuire Veterans Affairs Medical Center-Richmond, Richmond, VA, ⁷Radius Health, Inc., Waltham, MA, ⁸Radius Health, Inc, Boston, MA

Meeting: ACR Convergence 2022

Site, % (n/N)	Month	Abaloparatide (n=149)	Placebo (n=79)	P Value
LS+TH+FN	3	5.3 (7/133)	1.5 (1/67)	0.2721
	6	14.8 (18/122)	1.4 (1/70)	0.0020
	12	31.9 (38/119)	1.5 (1/66)	<0.0001
LS	3	61.2 (82/134)	30.9 (21/68)	<0.0001
	6	74.0 (91/123)	22.9 (16/70)	<0.0001
	12	87.4 (104/119)	28.8 (19/66)	<0.0001
TH	3	18.0 (24/133)	10.4 (7/67)	<0.1611
	6	27.9 (34/122)	7.1 (5/70)	0.0006
	12	42.0 (50/119)	12.1 (8/66)	<0.0001
FN	3	32.3 (43/133)	14.9 (10/67)	0.0085
	6	35.2 (43/122)	8.6 (6/70)	<0.0001
	12	51.3 (61/119)	19.7 (13/66)	<0.0001

FN, femoral neck; LS, lumbar spine; TH, total hip

ΑΒΑ σε άνδρες

- responders based on a **>3%** change in **BMD**
- **At Months 6 and 12**, a significantly greater proportion of men treated with abaloparatide were responders at a composite of LS, TH, and FN compared with placebo ($p \leq 0.002$)
- A significantly greater proportion of men treated with abaloparatide vs placebo were responders as early as **Month 3** for the LS and FN (**LS: 61.2% vs 30.9%**, $p < 0.0001$; **FN: 32.3% vs 14.9%**, $p < 0.0001$)

ΑΒΑ σε άνδρες



Research Article |  Open Access |  

The Efficacy and Safety of Abaloparatide-SC in Men With Osteoporosis: A Randomized Clinical Trial

Edward Czerwinski, Jose Cardona, Rafal Plebanski, Chris Recknor, Tamara Vokes, Kenneth G Saag, Neil Binkley, E Michael Lewiecki, Jonathan Adachi, Dorota Knychas, David Kendler ... [See all authors](#) ▾

First published: 03 October 2022 | <https://doi.org/10.1002/jbmr.4719>

BMD σε άνδρες

- frequency of bone mineral density (BMD) scans performed in men and women aged 65 and above from 2010 through 2021
- The prevalence of BMD scan in **women** was 8.65%
- it was only 0.82% for **men** in our cohort
- data for 2010, 2018 and 2021, the **same pattern** was observed
- The total rate of hip fracture was
 - 4.1% in women
 - 3% in men

ABSTRACT NUMBER: 0574

Osteoporosis in Elderly M

ΟΔΗΓΙΕΣ ΔΙΑΓΝΩΣΗΣ ΚΑΙ ΘΕΡΑΠΕΙΑΣ ΤΗΣ ΟΣΤΕΟΠΟΡΩΣΗΣ – 2020

Δ. ΠΟΤΕ ΠΡΕΠΕΙ ΝΑ ΥΠΟΒΑΛΛΟΝΤΑΙ ΟΙ ΑΣΘΕΝΕΙΣ ΣΕ ΜΕΤΡΗΣΗ
ΟΣΤΙΚΗΣ ΠΥΚΝΟΤΗΤΑΣ (ΑΝΔΡΕΣ ΚΑΙ ΓΥΝΑΙΚΕΣ):

ΗΛΙΚΙΑ < 50 ΕΤΩΝ:

Κατάγματα χαμηλής βίας
Υπογοναδισμός
Πρώιμη εμμηνόπαυση (< 45 ετών)
Σύνδρομο δυσαπορρόφησης
Πρωτοπαθής υπερπαραθυρεοειδισμός
Φαρμακευτική αγωγή σχετιζόμενη με απώλεια οστικής μάζας ή/και κίνδυνο κατάγματος (πχ στεροειδή, αναστολείς αρωματάσης, κτλ.)
Έτερα παθολογικά νοσήματα σχετιζόμενα με απώλεια οστικής μάζας ή/και κίνδυνο κατάγματος (πχ Ρευματοειδής Αρθρίτιδα, Σύνδρομο Cushing, Σακχαρώδης Διαβήτης τύπου 1 ή 2, σοβαρή ΧΑΠ, HIV λοίμωξη, κ.ά.).

ΗΛΙΚΙΑ 50 - 64 ΕΤΩΝ:

Κάταγμα χαμηλής βίας μετά την ηλικία των 40 ετών
Κάταγμα ισχίου γονέα
Σπονδυλικό κάταγμα ή/και οστεοπενική απεικόνιση οστών σε ακτινογραφίες
Χαμηλό βάρος (BMI < 20 kg/m²) ή/και απώλεια βάρους >10% από το βάρος του ασθενή στην ηλικία των 25 ετών
Κατανάλωση οινόπνεύματος (≥ 25-30 γρ. ημερησίως) ή/και κάπνισμα
Έτεροι παράγοντες και νόσοι (όπως στην ηλικιακή ομάδα < 50 ετών)

ΗΛΙΚΙΑ > 65 ΕΤΩΝ:

Όλοι οι άνδρες και γυναίκες

Μετά από χειρ ισχίου

- **delirium and cognitive** impairment
- United Kingdom National Hip Fracture Database (NHFD)
- **65,075** had a pre-operative AMTS ≥ 8 and were included in analyses
- A **quarter** developed an **abnormal 4AT** => suggesting post-operative delirium or cognitive impairment
- post-admission nerve block was associated with **lower** risk
- *socioeconomic* deprivation or *surgery* that was not NICE compliant with **higher** risk
- reduce the likelihood of **returning** home or to outdoor **mobility**

ABSTRACT NUMBER: 0070

Post-operative Delirium and Cognitive Impairment: An Analysis of Predictors and 120-day Outcomes in England Using the National Hip Fracture Database (NHFD)

Samuel Hawley¹, Dominic Inman², Celia Gregson¹, Michael Whitehouse¹, Antony Johansen³ and **Andrew Judge**¹, ¹University of Bristol, Bristol, United Kingdom, ²Northumbria Healthcare NHS Foundation Trust, Northumbria, United Kingdom, ³Cardiff University, Cardiff, Wales, United Kingdom

Meeting: **ACR Convergence 2022**

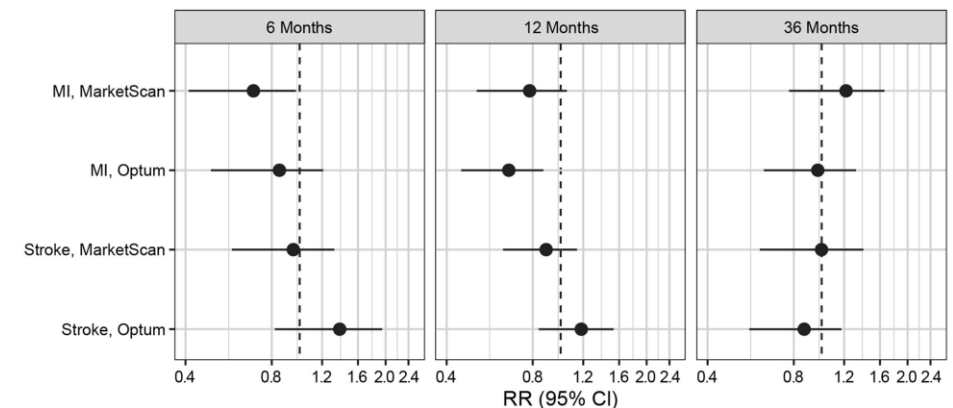
ABSTRACT NUMBER: 0575

Myocardial Infarction and Stroke Risks Among Patients Who Initiated Treatment with Denosumab or Zoledronic Acid for Osteoporosis

Leslie Spangler¹, Carrie Nielson¹, M Alan Brookhart², Rohini K Hernandez¹, Robert Kees Stad³ and Jay Lin¹, ¹Amgen, Inc., Thousand Oaks, CA, ²NoviSci, Inc., Durham, NC, ³Amgen Inc., Zug, Switzerland

Meeting: ACR Convergence 2022

Figure: Forest Plot of Adjusted Risk Ratios and 95% Confidence Intervals for Myocardial Infarction and Stroke at 6, 12, and 36 Months in Optum and MarketScan Cohorts



RR < 1.0 indicates higher risk in zoledronic acid users; RR > 1.0 indicates higher risk in denosumab users
RR axis is presented on a log scale
MI: myocardial infarction; CI: Confidence interval; RR: Risk ratio

ΑΕΕ ΥΠΟ DEN/ZOL

- 73,127 patients in *Optum* (mean follow-up 350 days) and 96,611 in *MarketScan* (mean follow-up 385 days) who initiated treatment with two different classes of antiresorptives, **denosumab** (RANKL inhibitor) or **zoledronic acid**
- At **36 months**, the adjusted relative risks (zoledronic acid referent group) (Optum /MarketScan)
 - **0.97** (95% CI: 0.63,1.32) and **1.22** (0.77,1.66) for **MI**
 - **0.87** (0.56,1.17) and **1.00** (0.61,1.40) for **stroke**
- **no increased risk in MI or stroke** was identified for up to 36 months of treatment in denosumab users compared with zoledronic acid users

Original Article |  Free Access

Risk of Incident Atrial Fibrillation With Zoledronic Acid Versus Denosumab: A Propensity Score–Matched Cohort Study

Kristin M D'Silva, Sara Jane Cromer, Elaine W Yu, Michael Fischer, Seoyoung C Kim 

First published: 02 November 2020 | <https://doi.org/10.1002/jbmr.4174> | Citations: 6

There was **higher risk of AF with ZA** compared with denosumab over 1 year (incidence rate [IR] = 18.6 versus 14.9 per 1000 person-years; hazard ratio [HR] = **1.25**; 95% confidence interval [CI] 1.04 to 1.50)

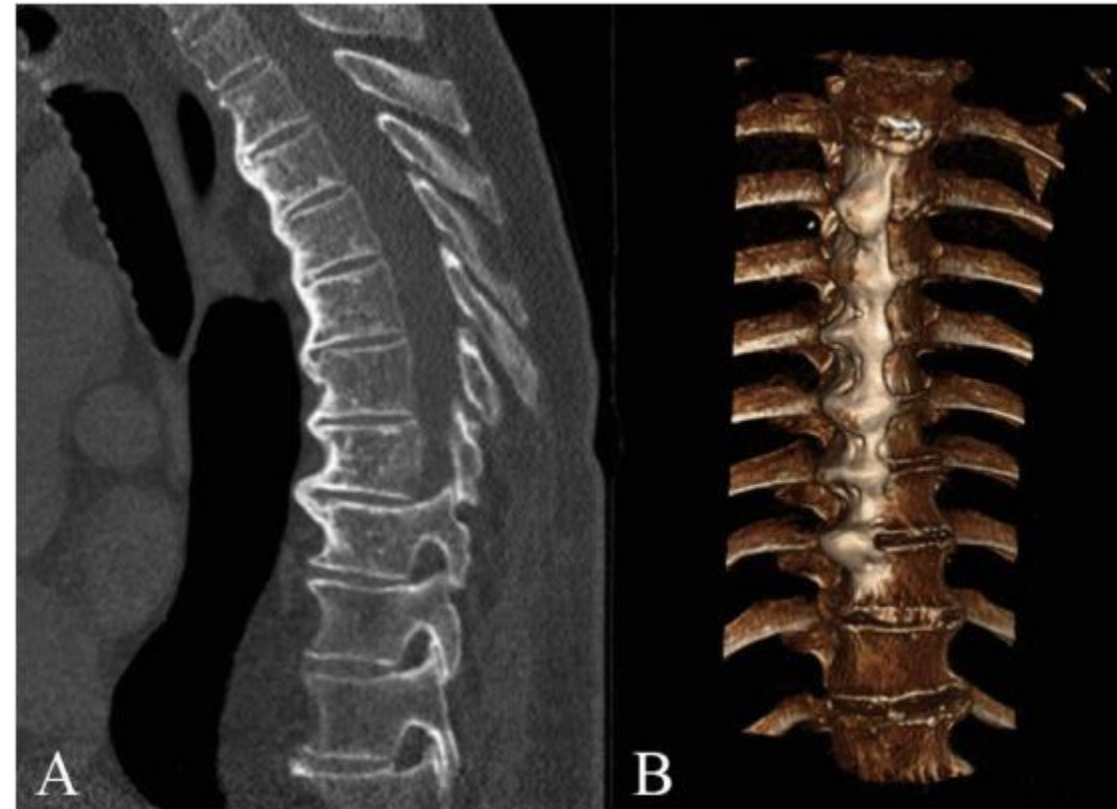
ORIGINAL ARTICLE

Once-Yearly Zoledronic Acid for Treatment of Postmenopausal Osteoporosis

Dennis M. Black, Ph.D., Pierre D. Delmas, M.D., Ph.D., Richard Eastell, M.D., Ian R. Reid, M.D., Steven Boonen, M.D., Ph.D., Jane A. Cauley, Dr.P.H., Felicia Cosman, M.D., Péter Lakatos, M.D., Ph.D., Ping Chung Leung, M.D., Zulema Man, M.D., Carlos Mautalen, M.D., Peter Mesenbrink, Ph.D., et al., for the HORIZON Pivotal Fracture Trial*

Diffuse idiopathic skeletal hyperostosis (DISH)

- non-inflammatory systemic condition characterized by characteristic **ossification** patterns that can occur in the spine and peripheral entheses
- **back** pain and stiffness
- ossifications along the **anterolateral** aspect in 4 contiguous vertebrae
- **right** side of the **thoracic** spinal segment
- various risk factors have been identified in the literature, including gout, hyperlipidemia, and diabetes
- associated with increased risk of **vertebral** fractures.

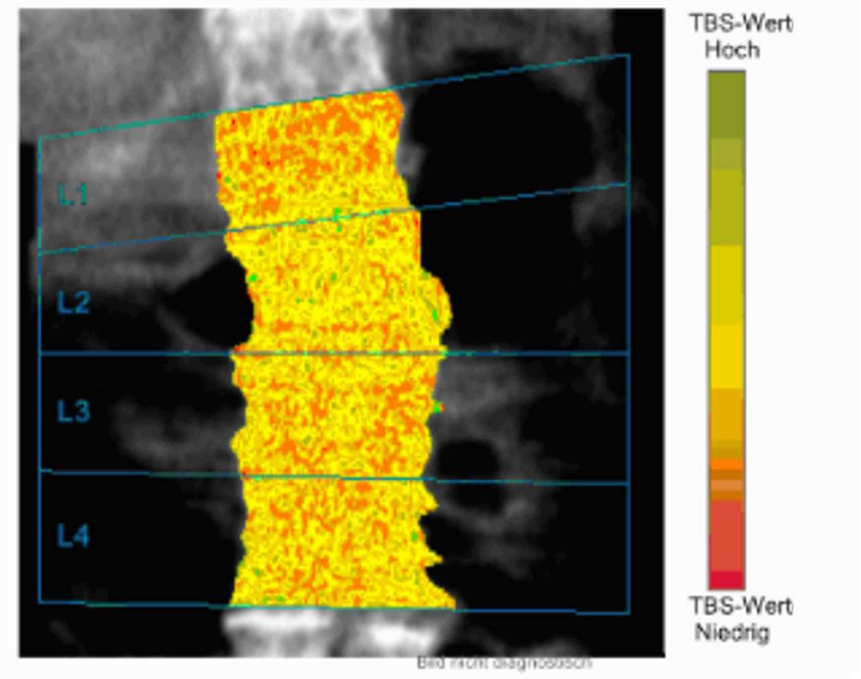


ABSTRACT NUMBER: 1310

Is the Trabecular Bone Score (TBS) a Useful Tool in Patients with Diffuse Idiopathic Skeletal Hyperostosis (DISH)?

Bjoern Buehring¹, David Kiefer², Celina Mueller², Roshnak Parvae², Marianti Ifanti², Ioana Andreica³, Timm Westhoff⁴, Rainer Wirth⁴, Xenofon Baraliakos⁵, Nina Babel⁴ and Juergen Braun², ¹Bergisches Rheuma-Zentrum, Wuppertal, Germany, ²Rheumazentrum Ruhrgebiet, Herne, Germany, ³Rheumazentrum Ruhrgebiet, Ruhr-Universität-Bochum, Herne, Germany, ⁴Marienhospital Herne, Ruhr-University Bochum, Herne, Germany, ⁵Rheumazentrum Ruhrgebiet Herne, Herne, Germany

Meeting: ACR Convergence 2022



TBS στη DISH

- 153 patients RMD (mean age 72.8 ± 5.4 years; 72.5% women) was included in the analysis.
- 19 patients (12.3%) fulfilled the criteria for DISH
- **BMD and T-scores were higher** and FRAX FxR was lower in patients with DISH compared to controls
- TBS was similar
 - **0%** of patients with DISH had **osteoporosis** by WHO criteria
 - compared to **23.9%** in the control group
- previous **fractures** and falls in the last 12 months were **similar** between groups

Κάταγμα στη ΑΣ

- RISE, a large, national electronic health **record**-based **registry**, which was linked to Medicare claims from 2016-2018
- **2.092** adults with **AS** in RISE
- **Fractures** occurred in **137** AS adults
- The overall incidence rate of fractures among adults with AS was **37.01** (95% CI 31.31-43.76) per 1,000 person-years
- **older**, had a low **BMI**, had multiple **comorbidities** including osteoporosis, and used **opioids** chronically had a higher odds of fracture.
- Men and women with AS were **equally** likely to have a fracture

ABSTRACT NUMBER: 0388

Incidence Rate and Factors Associated with Fractures Among Older Adults with Ankylosing Spondylitis in the United States

Rachael Stovall¹, Emma Kersey¹, Jing Li², Rahaf Baker³, Christine Anastasiou², Gabriela Schmajuk⁴, Lianne Gensler⁵ and Jinoos Yazdany⁶, ¹University of California San Francisco, San Francisco, CA, ²University of California, San Francisco, San Francisco, CA, ³Alameda Highland Internal Medicine Residency, Oakland, CA, ⁴UCSF / SFVA, San Francisco, CA, ⁵Department of Medicine, Division of Rheumatology, University of California San Francisco, San Francisco, CA, ⁶UCSF, San Francisco, CA

Meeting: ACR Convergence 2022

	Total N = 2092 (%)	Fracture N = 137 (%)	Unadjusted OR (95% CI)	Adjusted OR ^a
Age, mean (SD)	68.4 (10.1)	71.3 (9.6)		
<65	516 (24.7)	19 (13.9)	1.0 (ref)	1.0 (ref)
65-75	1067 (51.0)	71 (51.8)	1.86 (1.11 – 3.13)	1.58 (0.91 – 2.74)
76-85	423 (20.2)	37 (27.0)	2.51 (1.42 – 4.43)	1.86 (1.01 – 3.46)
>85	86 (4.1)	10 (7.3)	3.44 (1.54 – 7.68)	2.70 (1.14 – 6.42)

Κάταγμα στη ΑΣ (ii)

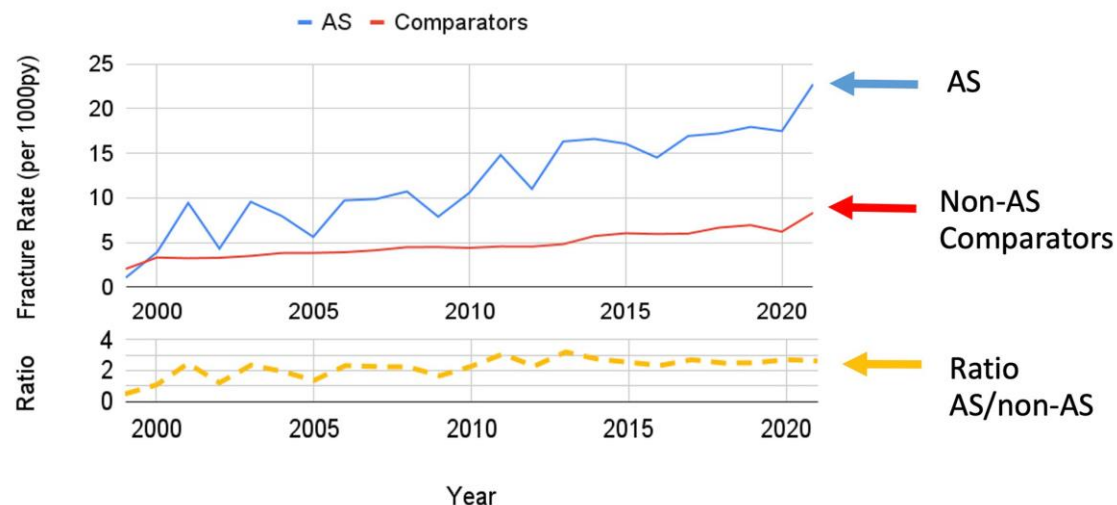
- national Veterans Affairs Corporate Data Warehouse
- **3,983** patients with AS (median age 52.61 years, 92.4% men, 77.2% white) and 1,152,573 randomly selected general population **comparators**
- The annual incidence rate of fractures **increased** among those with AS, from **2.1** per 1000 PY in **1999** to **22.8** in **2021**
- This rate of **fractures was increased in the TNFi era** (2004-2021) relative to the pre-TNFi era

ABSTRACT NUMBER: 1011

Trends in Fracture Rates Among Veterans with Ankylosing Spondylitis

Sali Merjanah¹, Jean Liew¹, John Bihn², Nathanael Fillmore², Nhan Do³ and Maureen Dubreuil⁴, ¹Boston University, Boston, MA, ²VA Boston Healthcare System, Boston, MA, ³VA Boston Healthcare System, Boston University School of Medicine, Boston, MA, ⁴Department of Rheumatology, Boston University School of Medicine, Boston, MA

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Κάταγμα & Tofacitinib

- **Preclinical** data suggest that tofacitinib stimulates osteoblast function and would have a protective effect on bone health and fracture risk in RA
- post hoc analyses of tofacitinib clinical **trials** and a **real-world** data registry
- In **pooled clinical trial** data, rates of all fractures were **numerically lower** with tofacitinib **vs placebo** (HR [95% confidence interval (CI)] 0.55 [0.18, 1.65])
- In ORAL Surveillance, HRs (95% CIs) for all **fractures** with tofacitinib 5 and 10 mg BID **vs TNFi** were **1.23** (0.96, 1.58) and 1.26 (0.97, 1.62)
- In CorEvitas (corona) **registry** data, HRs (95% CIs) for any fracture with tofacitinib **vs bDMARDs** were **1.27** (0.82, 1.97) with PS trimming, and 1.42 (0.96, 2.09) with PS matching (p > 0.05)

25% αύξηση για κάταγμα με JAK

ABSTRACT NUMBER: 1431

Impact of Tofacitinib on Fracture Risk in Rheumatoid Arthritis

Karen E Hansen¹, Mahta Mortezaei², Edward Nagy³, Cunshan Wang⁴, Carol A Connell⁴, Zaher Radi⁵, Heather J Litman⁶, Giovanni Adami⁷ and Maurizio Rossini⁷, ¹Rheumatology Division, Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, WI, ²Pfizer Inc, New York, NY, ³Pfizer Ltd, Tadworth, United Kingdom, ⁴Pfizer Inc, Groton, CT, ⁵Pfizer Inc., Cambridge, MA, ⁶CorEvitas, LLC, Waltham, MA, ⁷Rheumatology Unit, Department of Medicine, University of Verona, Verona, Italy

Meeting: ACR Convergence 2022

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Research Highlight | [Published: 12 March 2020](#)

BONE

JAK inhibitors boost bone formation

[Joanna Clarke](#) 

[Nature Reviews Rheumatology](#) **16**, 249 (2020) | [Cite this article](#)

> [Osteoporos Int.](#) 2021 Aug;32(8):1621-1629. doi: 10.1007/s00198-021-05871-0. Epub 2021 Feb 9.

Effects of one-year tofacitinib therapy on bone metabolism in rheumatoid arthritis

A Hamar¹, Z Szekanecz², A Pusztai¹, M Czókolyová¹, E Végh¹, Z Pethó¹, N Bodnár¹, K Gulyás¹, Á Horváth¹, B Soós¹, L Bodoki¹, H P Bhattoa³, G Nagy³, G Tajti⁴, G Panyi⁴, É Szekanecz⁵, A Domján¹, K Hodosi¹, S Szántó^{1 6}, G Szűcs¹, S Szamosi¹

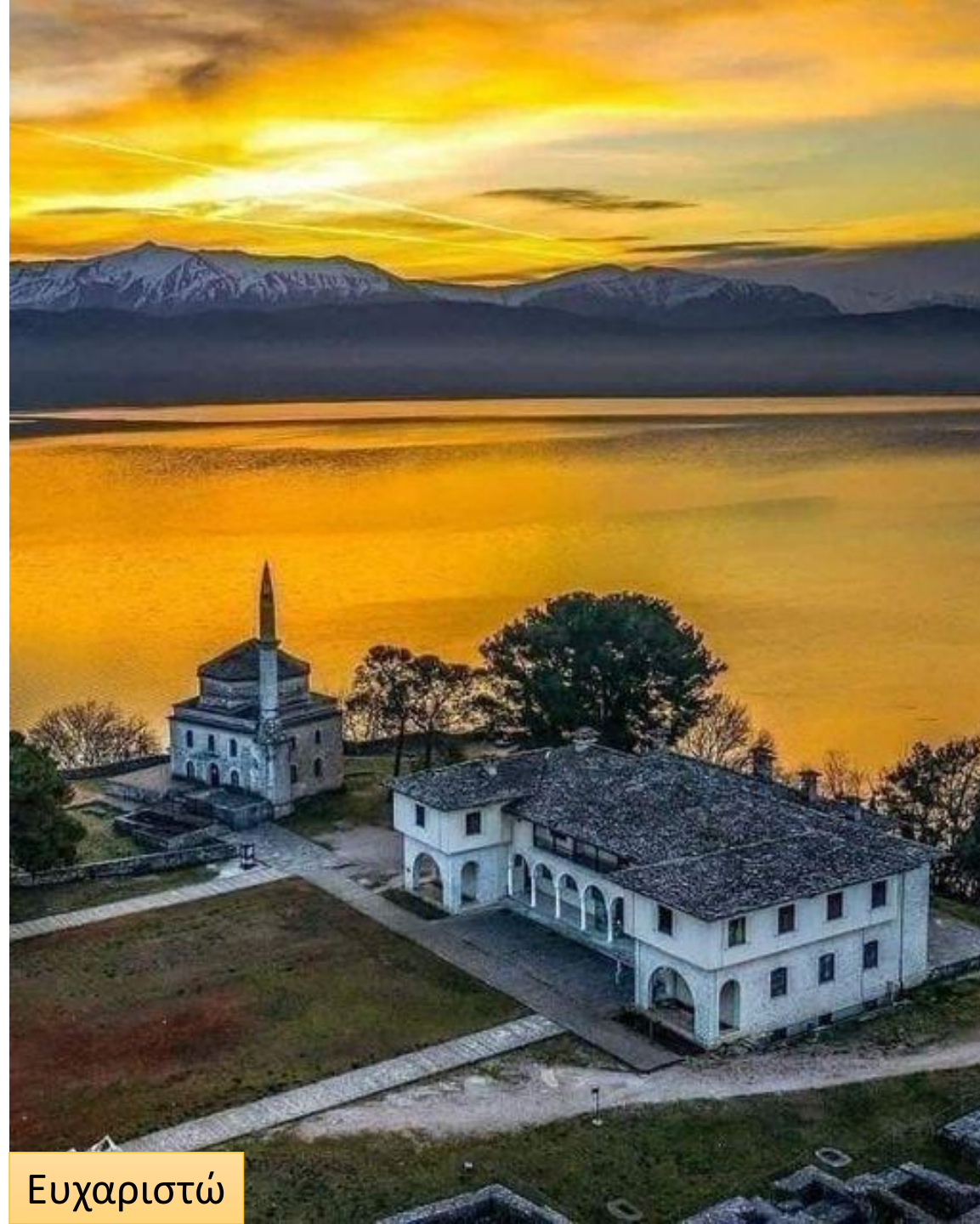
Affiliations + expand

PMID: 33559714 PMCID: [PMC8376736](#) DOI: [10.1007/s00198-021-05871-0](#)

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JAK inhibitors reduce bone loss by promoting **new bone** formation by osteoblasts, rather than by affecting osteoclasts

stabilized BMD in RA patients and resulted in a positive balance of bone turnover



Ευχαριστώ

