Systemic Lupus Erythematosus and (GI)OP

LUPUS SCIENCE & MEDICINE

Prevalence and determinants of vertebral fractures in a SLE cohort

Denise Rotta ,[1] Giovanni Adami,[1] Isotta Galvagni,[1] Francesca Pistillo,[1] Angelo Fassio,[1] Davide Gatti,[1] Margherita Zen,[2] Viviana Ravagnani,[3] Federica Maiolini,[4] Jacopo Croce,[4] Alessandro Volpe,[5] Carmela Dartizio,[1] Camilla Benini,[1] Francesca Ruzzon,[1] Ombretta Viapiana,[1] Maurizio Rossini,[1] Giovanni Orsolini[1]

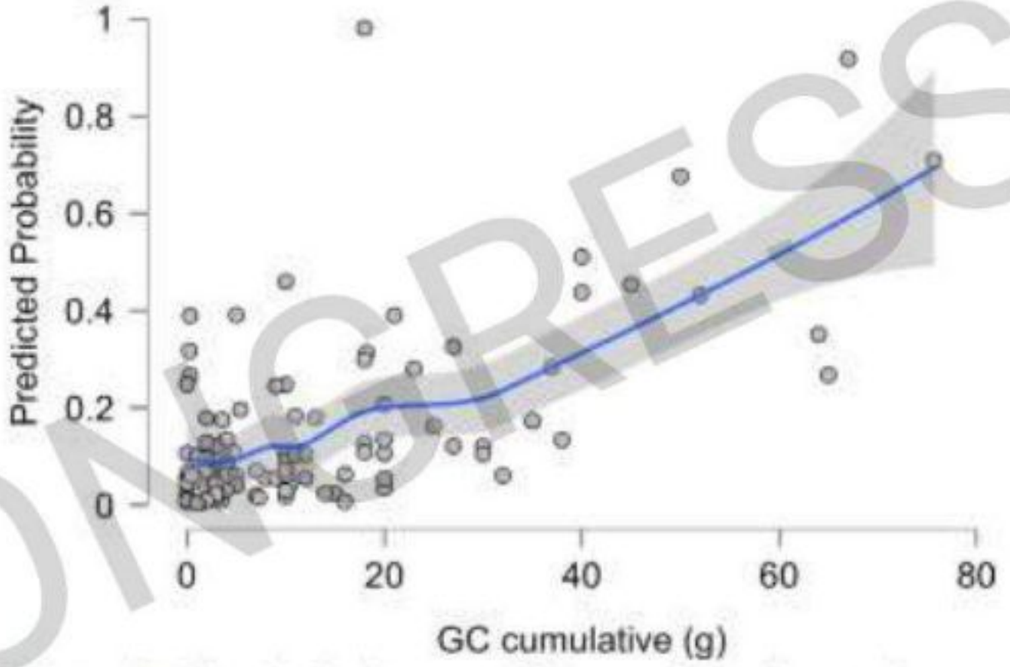


Figure 2 Correlation between GC cumulative dose and vertebral fractures. GC, glucocorticoid.

WHAT THIS STUDY ADDS

⇒ Systematic vertebral fracture assessment revealed previously unrecognised vertebral fractures in 14.2% of patients. Cumulative glucocorticoid exposure was identified as the strongest factor associated with both the presence and the number of vertebral fractures.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ These findings underscore the importance of routine vertebral fracture screening in patients with SLE, especially those undergoing long-term glucocorticoid therapy, in order to optimise rheumatologic management and enable timely initiation of bone-protective treatment.

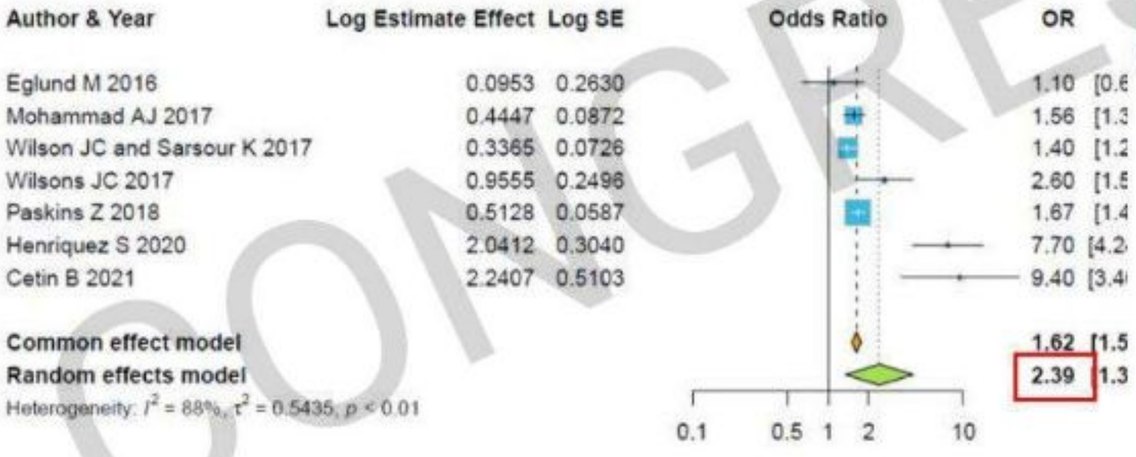
Rotta D, *et al. Lupus Science & Medicine* 2025;**12**:e001508. doi:10.1136/lupus-2025-001508

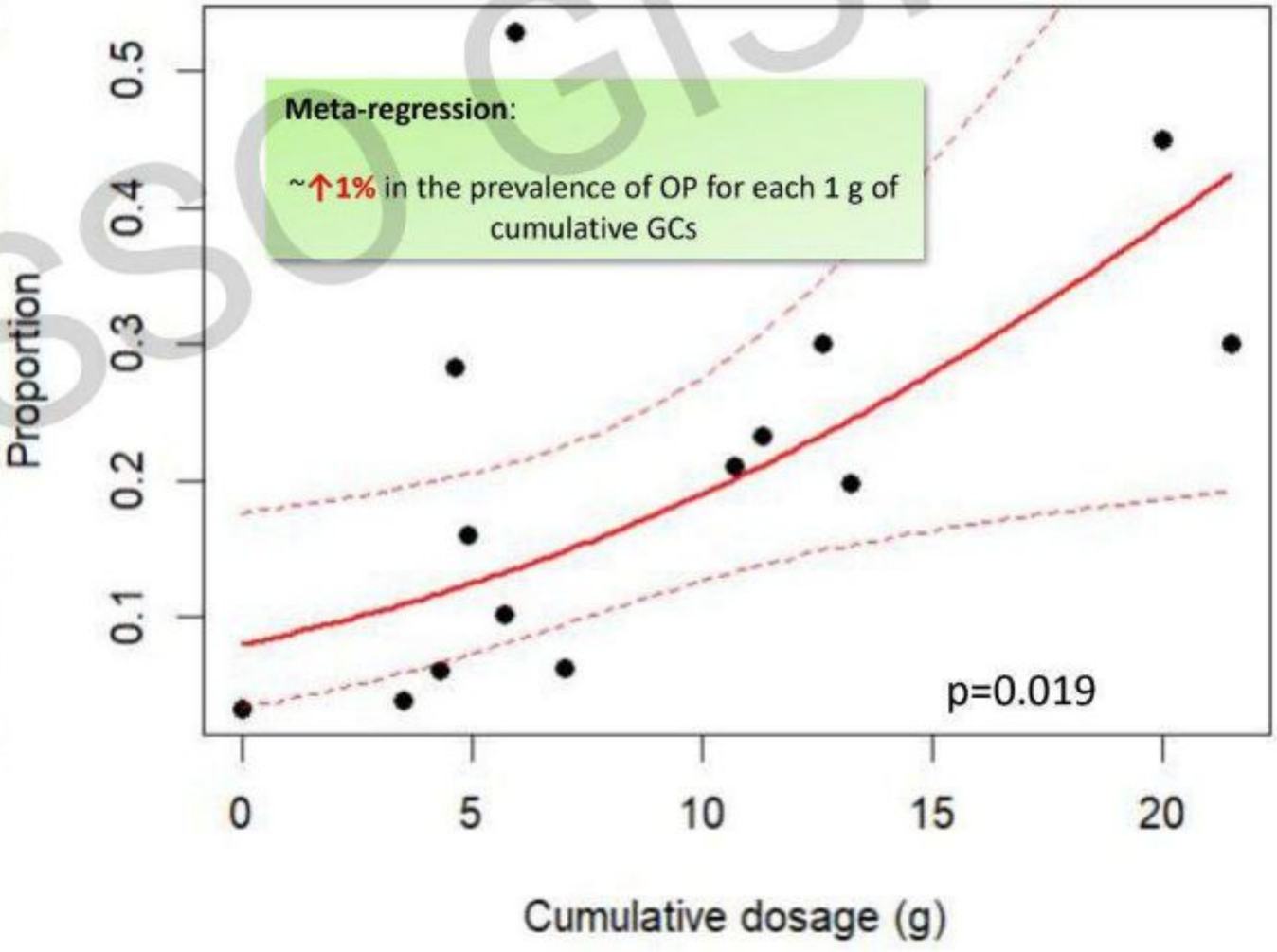
Osteoporosis and fractures in systemic vasculitides: a systematic review and meta-analysis

Angelo Fassio[1], Alvise Berti[2, 3], Alessandro Mantovani[4], Giovanni Adami[1], Francesco Pollast
Davide Gatti[1], Riccardo Bixio[1], Valeria Messina[1], Maurizio Rossini[1], Davide Bertelle[1, 5], Euge
Bertoldo[1], Isotta Galvagni[1], Roberto Bortolotti[3], Ombretta Viapiana[1]

frontiers

Fracture prevalence **17.1%** [95%CI 11.4-24.8

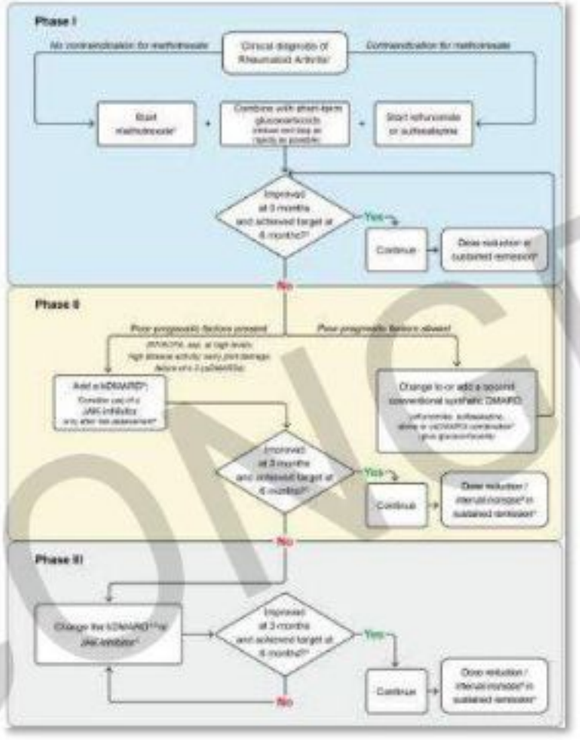




“as little GCs as possible”

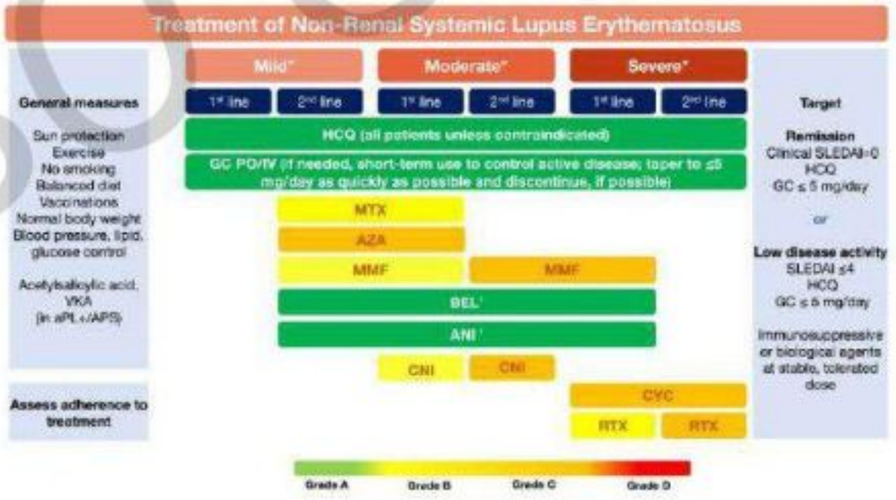
EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2022 update

Recommendations					
6. Short-term glucocorticoids should be considered when initiating or changing csDMARDs, in different dose regimens and routes of administration, but should be tapered and discontinued as rapidly as clinically feasible.	1a	A	9.3±1.2	92	



EULAR recommendations for the management of systemic lupus erythematosus: 2023 update

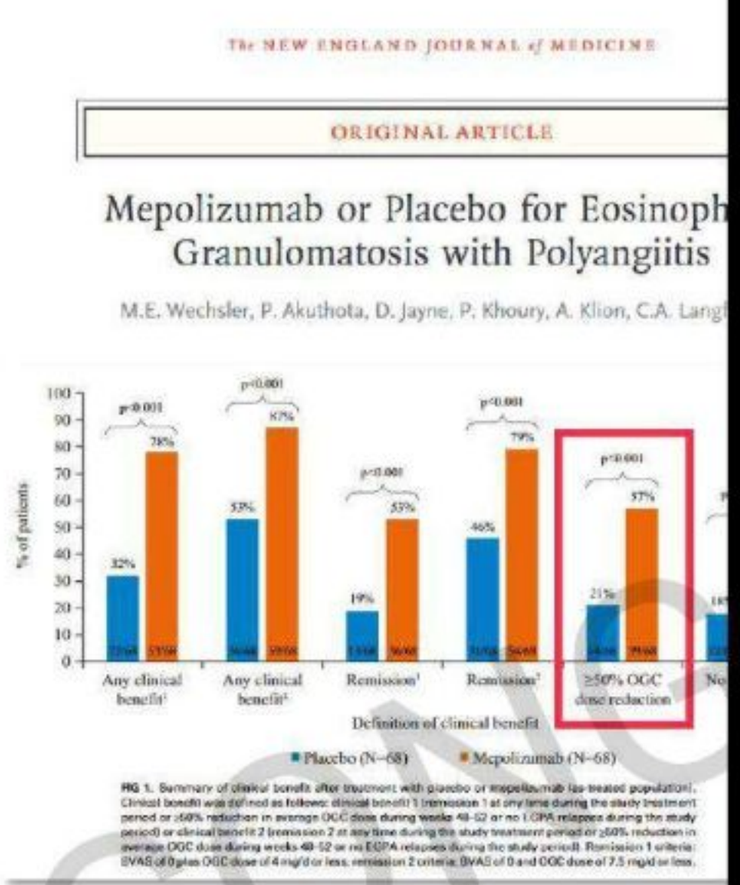
Recommendation/statement			
2. Glucocorticoids, if needed, are dosed based on the type and severity of organ involvement (2b/C), and should be reduced to maintenance dose of ≤5 mg/day (prednisone equivalent) (2a/B) and, when possible, withdrawn; in patients with moderate-to-severe disease, pulses of intravenous methylprednisolone (125–1000 mg/day, for 1–3 days) (3b/C) can be considered.	9.57 (0.77)	97.6	



13. Immunisations for the prevention of infections (herpes zoster virus, human papillomavirus, influenza, COVID-19 and pneumococcus), management of bone health, nephroprotection and cardiovascular risk, and screening for malignancies, should be performed (5/D).

“as little GCs as possible”

EGPA (Churg-Strauss): 2017



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Mepolizumab or Placebo for Eosinoph
Granulomatosis with Polyangiitis

M.E. Wechsler, P. Akuthota, D. Jayne, P. Khoury, A. Klion, C.A. Langf

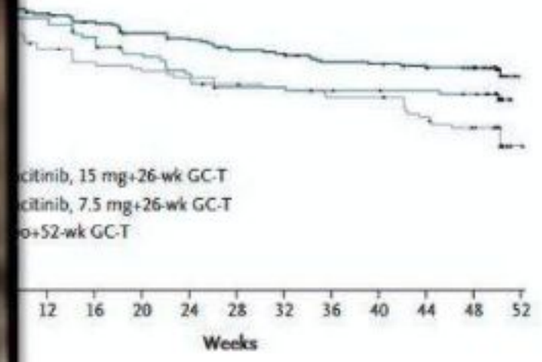
(a. di Horton): 2025

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Phase 3 Trial of Upadacitinib for Giant-Cell Arteritis

Daniel Blockmans, M.D., Ph.D.,[1,2] Sara K. Penn, M.D.,[1]



mulative prednisone
UPA 15 mg: 1615 mg
Placebo: 2882 mg

How should we treat?

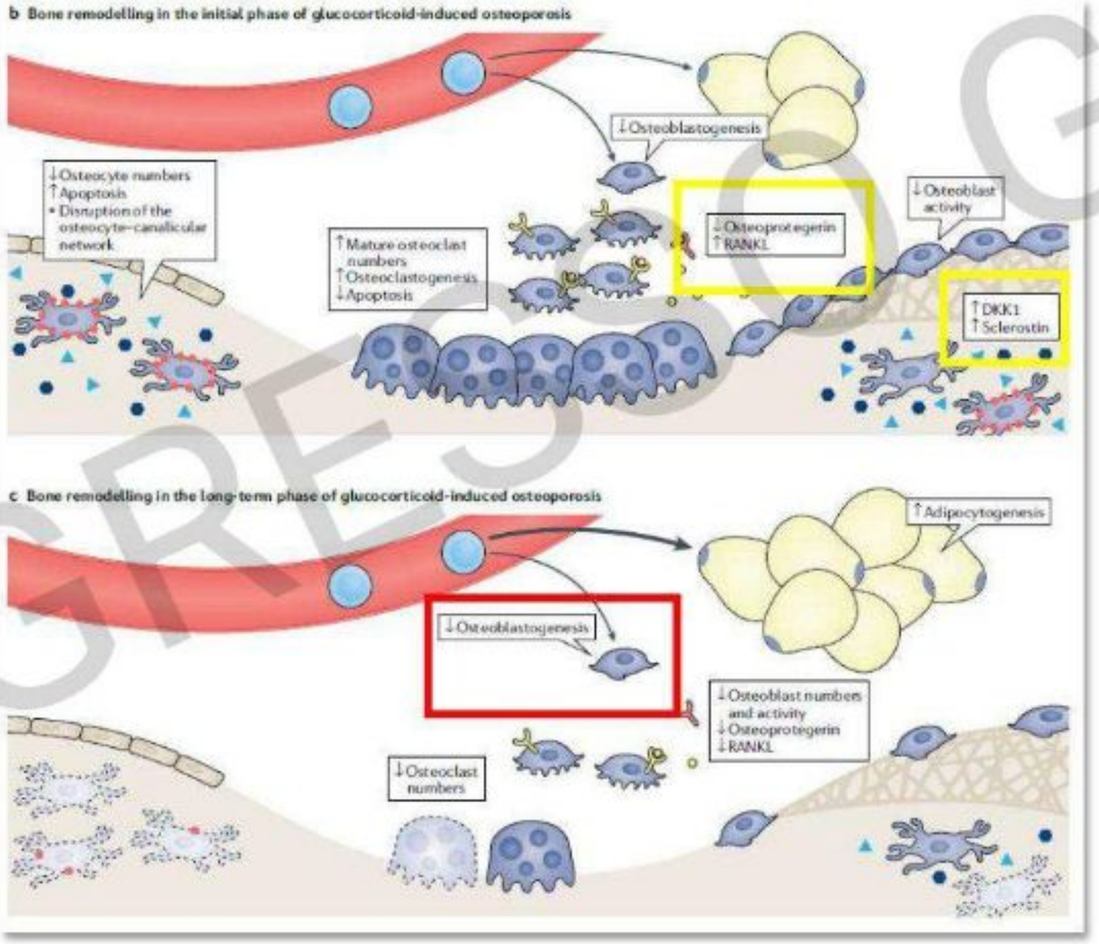
Pathogenesis of glucocorticoid-induced osteoporosis and options for treatment

Pojchong Chotiyarnwong[1,2] and Eugene V. McCloskey[2,3,4]

nature reviews endo

Early phase (first year)

Long-term



↑bone resorption

↓bone formation

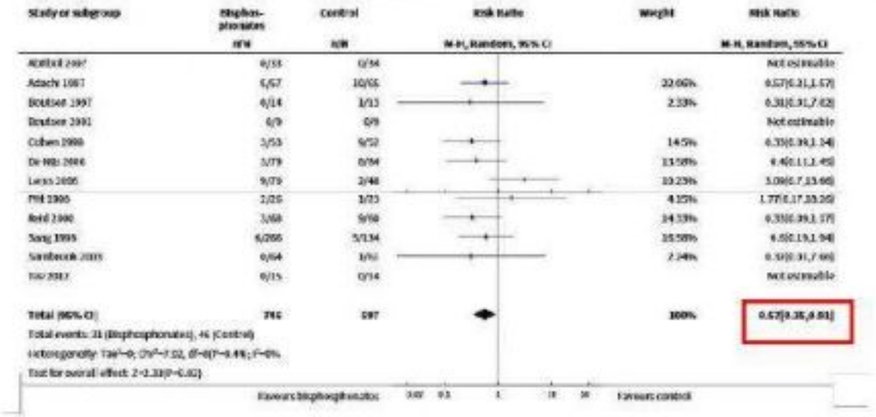
Early phase (primary prevention)?

Cochrane Library

Bisphosphonates for steroid-induced osteoporosis (Review)

BPs

Analysis 1.1. Comparison 1 Bisphosphonates vs control: benefits - fractures, Outcome 1 Incident radiographic vertebral fractures 12-24 months.



Cochrane Database Syst Rev. 2016 Oct 5;10(10):CD001347.

Dmab

Denosumab versus risedronate in glucocorticoid-induced osteoporosis: a multicentre, randomised, double-blind, active-controlled, double-dummy, non-inferiority study

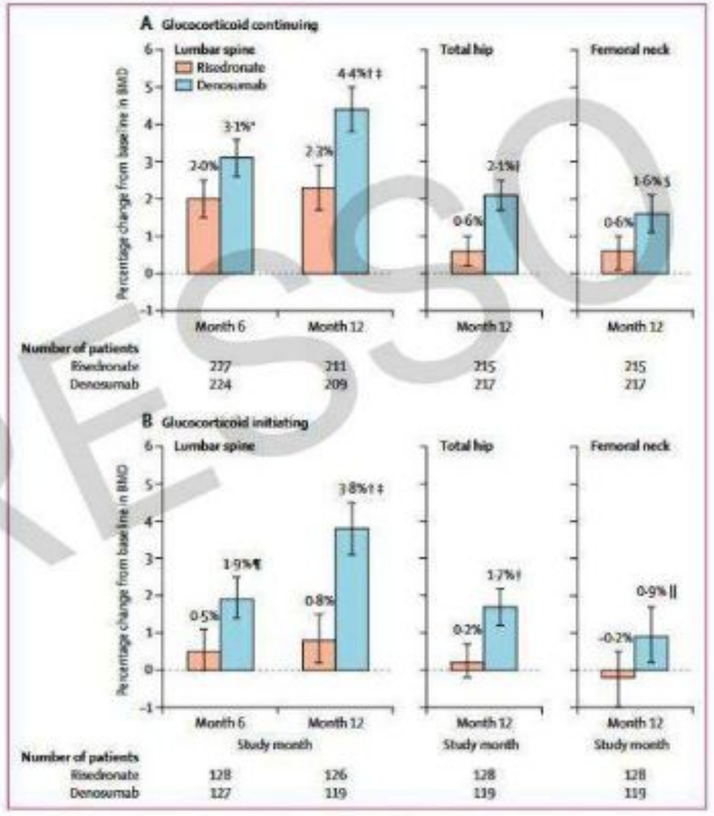


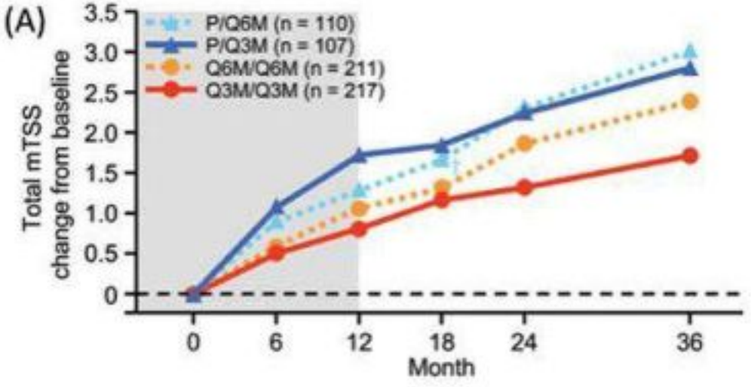
Figure 2: Percentage change from baseline in BMD at the lumbar spine, total hip, and femoral neck in the glucocorticoid-continuing (A) and glucocorticoid-initiating (B) subpopulations

www.thelancet.com/diabetes-endocrinology Published online April 6, 2018

DMAb in RA: inhibition of structural progression

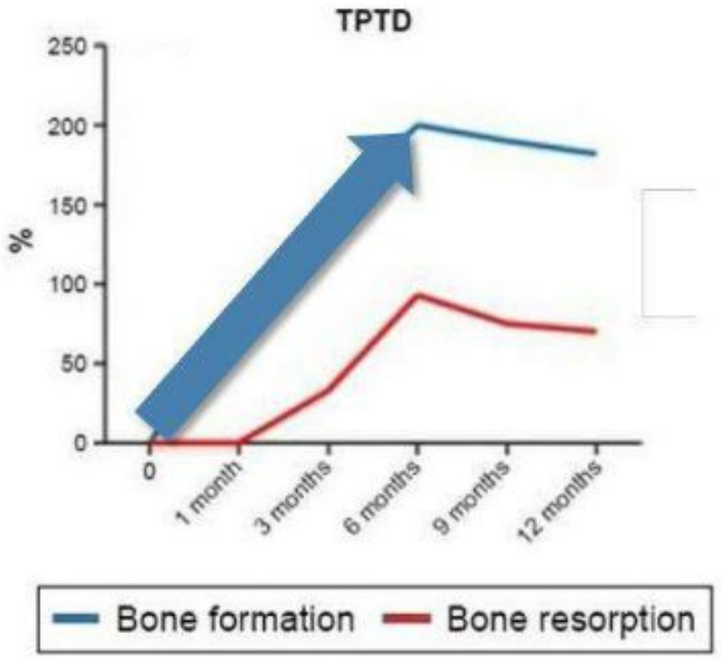
Effects of Denosumab in Japanese Patients With Rheumatoid Arthritis Treated With Conventional Antirheumatic Drugs: 36-month Extension of a Phase III Study

Yoshiya Tanaka, Tsutomu Takeuchi, Satoshi Soen, Hisashi Yamanaka, Toshiyuki Yoneda, Sakae Tanaka, Takaya Nitta, Naoki Okubo, Harry K. Genant, and Désirée van der Heijde



The Journal of Rheumatology 2021

Late phase (secondary prevention)?



ORIGINAL ARTICLE

Teriparatide or Alendronate in Glucocorticoid-Induced Osteoporosis

Kenneth G. Saag, M.D., Elizabeth Shane, M.D., Steven Boonen, M.D., Ph.D., Fernando Marín, M.D., David W. Donley, Ph.D., Kathleen A. Taylor, Ph.D., Gail P. Dalsky, Ph.D., and Robert Marcus, M.D.

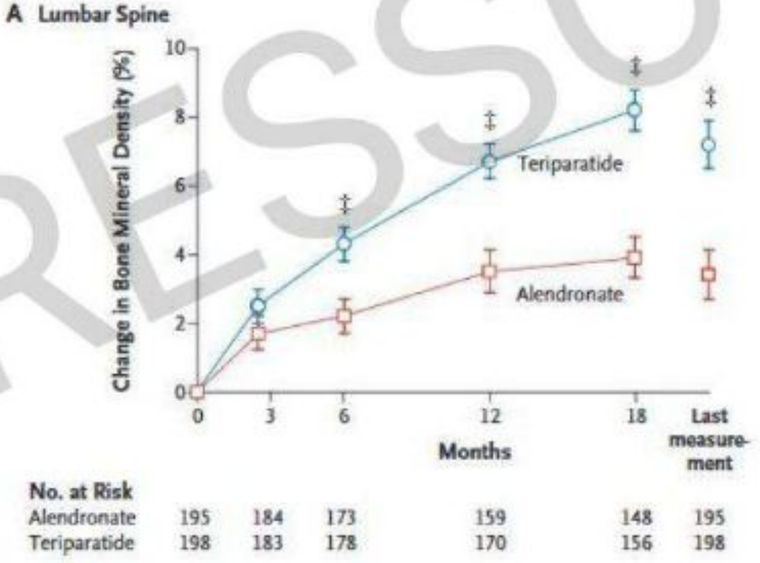


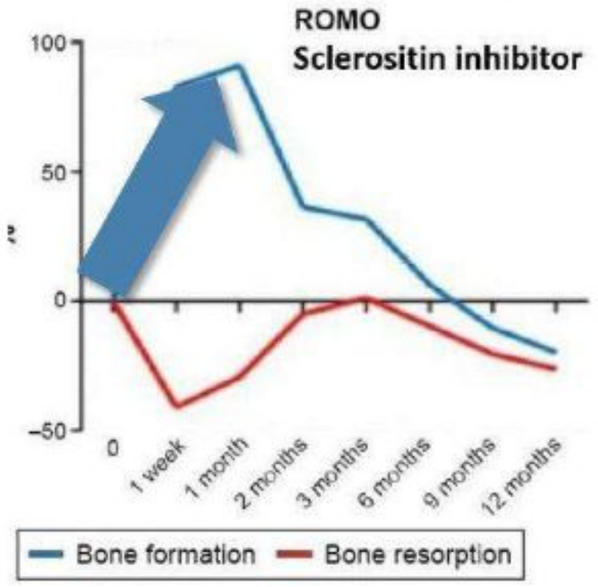
Table 2. Incident vertebral and nonvertebral fractures in subjects with glucocorticoid-induced osteoporosis*

Fracture type	Subjects taking alendronate (n = 214)	Subjects taking teriparatide (n = 214)	*P*
≥1 radiographic vertebral†	13 (7.7)	3 (1.7)	0.007
≥1 clinical vertebral‡	4 (2.4)	0	0.037
≥1 nonvertebral	15 (7.0)	16 (7.5)	0.843
≥1 nonvertebral fragility	5 (2.3)	9 (4.2)	0.256

* Values are the number (%).
† Subjects with baseline and postbaseline spinal radiographs (n = 169 subjects in the alendronate group and 173 subjects in the teriparatide group).
‡ A clinical vertebral fracture (assessed in 169 subjects in the alendronate group and 173 subjects in the teriparatide group) was a new radiographically confirmed fracture that was associated with symptoms such as back pain.

ARTHRITIS & RHEUMATISM
Vol. 60, No. 11, November 2009, pp 3346–3355
DOI 10.1002/art.24879

ROMO vs Dmab in SARD-GIOP



Romosozumab versus denosumab in long-term users of glucocorticoids: A pilot randomized controlled trial

Chi Chiu Mok[1], Kar Li Chan[1], Sau Mei Tse[1], Sammy Pak Lam Chen[2], Kathryn Choon Beng Tan[3] & Wai Han Ma[4]

RCT, 70 subjects randomised

1.ROMO 12m → Dmab 12 m
2.Dmab 24 mesi

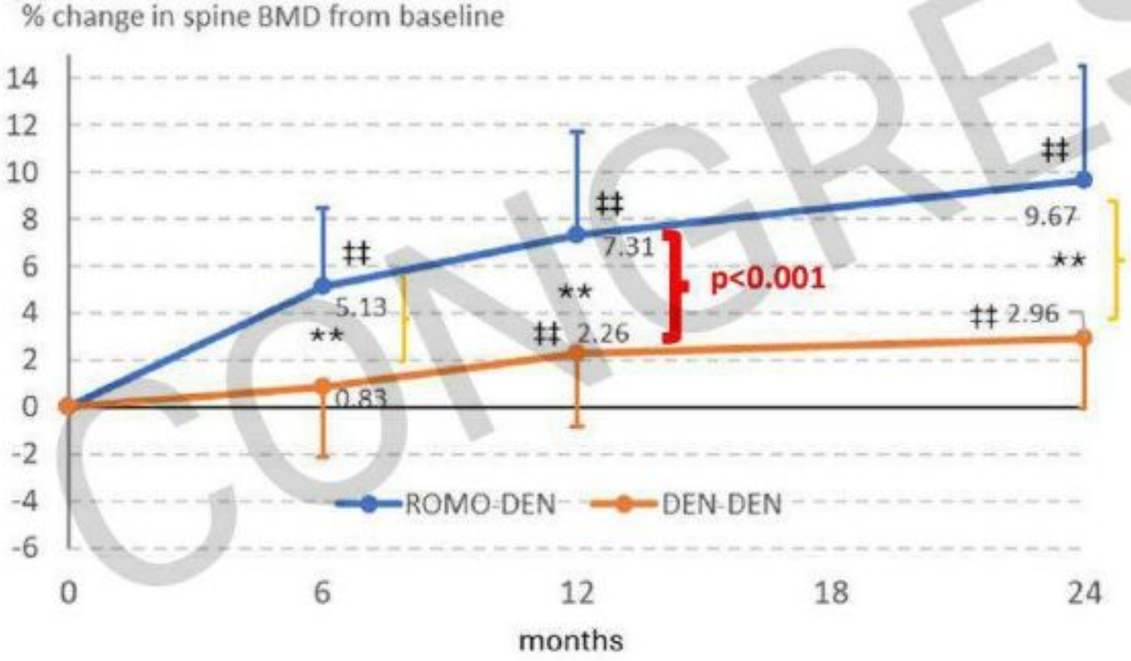
Primary endopoint: BMD change in LS BMD m12

Underlying medical diseases:

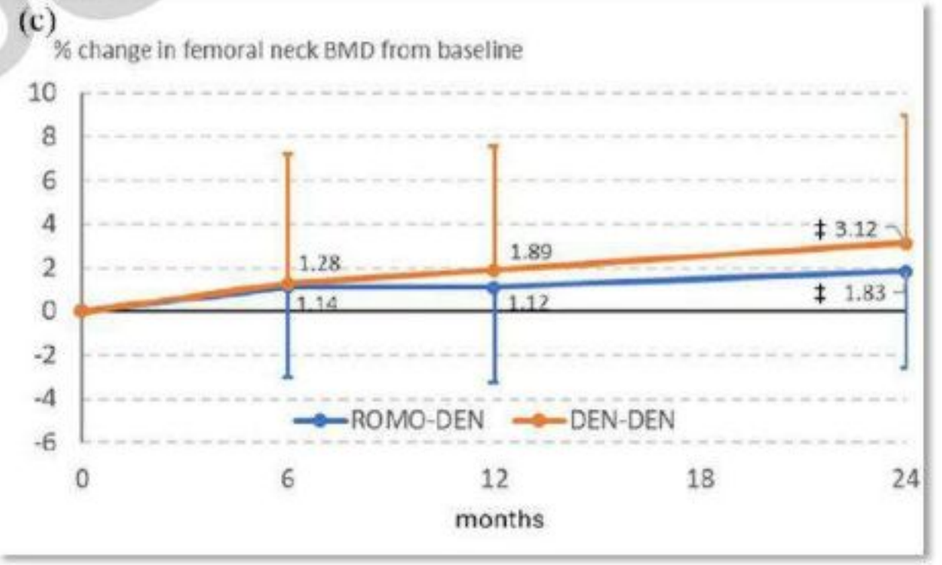
- 51% SLE
- 29% RA
- 9% IIM
- 11% Others

Cumulative doses of prednisolone in the first 12 months after study entry, g	2.26 ± 0.84	2.07 ± 0.58	0.28

(a)



(c)



Journal of Internal Medicine, 2024, 0; 1–14

Take home

- Le malattie reumatiche infiammatorie sono un fattore di rischio (indipendente) per osteoporosi
- La strategia principale per gestire la salute ossea nei pazienti reumatici è «fare meno cortisone possibile»… ci stiamo arrivando con la farmacologia (speriamo anche con le intenzioni)
- Il principale beneficio dei f. immunomodulanti è dovuto all'effetto steroid-sparing ed alla soppressione dell'infiammazione
- Dal punto di vista delle terapie osteometaboliche, valgono le consuete raccomandazioni, volendo con qualche finezza ☺

AZIENDA OSPEDALIERA UNIVERSITARIA INTEGRATA
VERONA

UNITÀ OPERATIVA COMPLESSA DI REUMATOLOGIA

How should we treat?

Pathogenesis of glucocorticoid-induced osteoporosis and options for treatment

Pojchong Chotiyarnwong[1,2] and Eugene V. McCloskey[2,3,4]

Pharmacological fracture prevention

While no evidence suggests that anti-osteoporosis medications that work in postmenopausal osteoporosis would not also work in GIO, evidence of their efficacy to reduce

438 | AUGUST 2020 | VOLUME 16 www.nature.com/nrendo

(DO NOT) SHOOT YOURSELF IN THE FOOT

Extensive expertise in endocrinology: advances in the management of glucocorticoid-induced osteoporosis

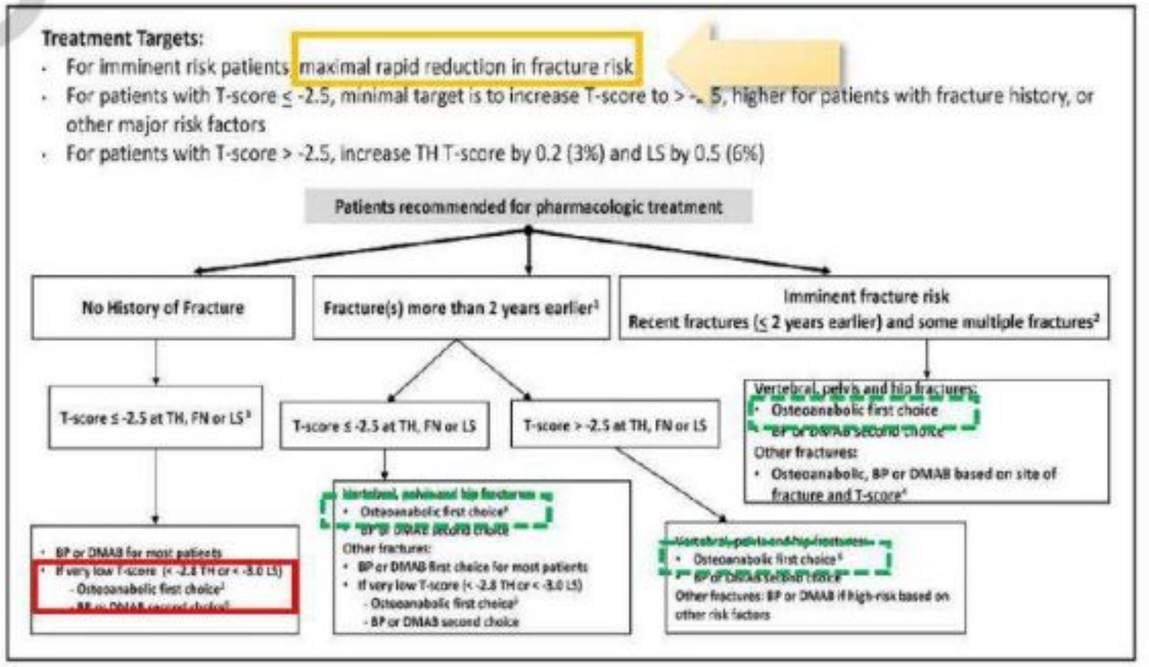
Juliet E. Compston*

The requirement for regulatory approval of an intervention to treat glucocorticoid-induced osteoporosis when that agent has proven efficacy in postmenopausal ± male osteoporosis has not been applied to other forms of secondary osteoporosis and the need for specific approval for glucocorticoid-induced osteoporosis is questionable.

www.eje-online.org EJE

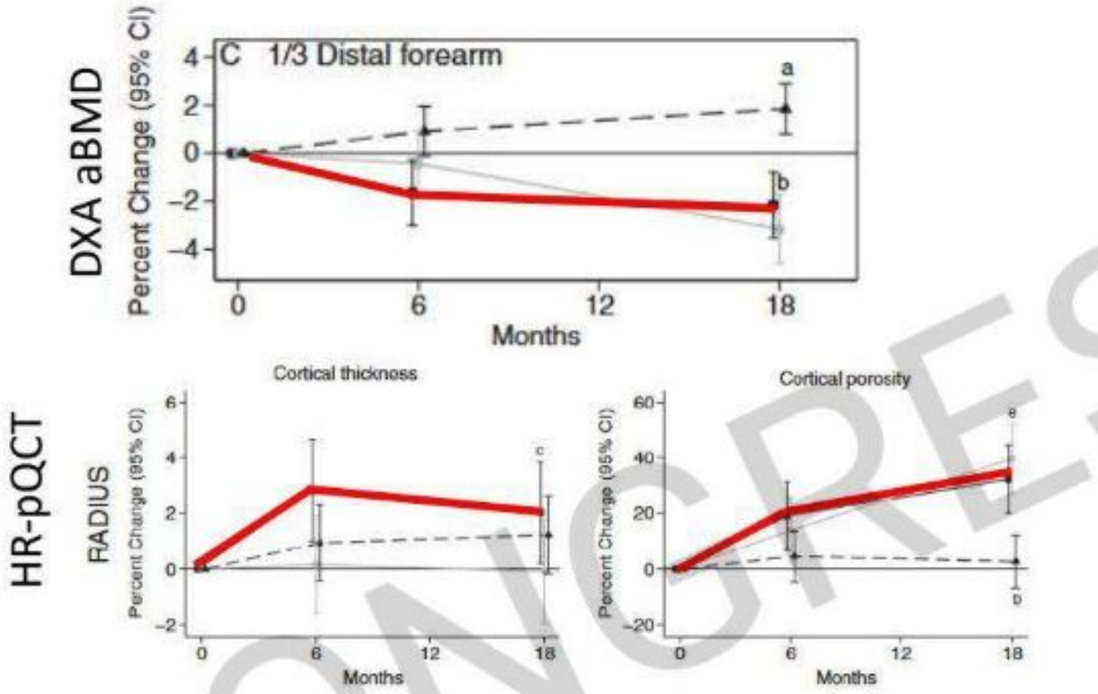
European Journal of Endocrinology, 2023, 188, R46–R55

Goal-directed osteoporosis treatment: ASBMR/BHOF task force position statement 2024



Differing Effects of PTH 1–34, PTH 1–84, and Zoledronic Acid on Bone Microarchitecture and Estimated Strength in Postmenopausal Women With Osteoporosis: An 18-Month Open-Labeled Observational Study Using HR-pQCT

Stinus Hansen,[1,2] Ellen M Hauge,[3] Jens-Erik Beck Jensen,[4] and Kim Brixen[1,2]



Journal of Bone and Mineral Research, Vol. 28, No. 4, April 2013, pp 736–745

TPTD and bone erosions in RA RCT (12 m)

DOI 10.1002/art.40385

Lack of effect of teriparatide on joint erosions in rheumatoid arthritis is an expected result: comment on the article by Solomon et al

To the Editor:

We read with great interest the report by Solomon and colleagues describing their randomized controlled trial of teriparatide therapy in tumor necrosis factor inhibitor–treated patients with rheumatoid arthritis (RA) (1). Their study did not demonstrate any significant effect of teriparatide on bone erosions in these patients. In our opinion, it is not surprising that teriparatide did not produce the expected result. A few considerations can explain the lack of effect.

First, bone erosions affect mainly cortical bone (2,3), and it is well known that teriparatide does not exert a positive therapeutic effect on cortical sites in the short term: in particular, during the first 6 months of treatment. Studies, including one with an RA patient group (4), have shown that it had no significant effect on bone mineral density (BMD) at cortical sites such as the femoral neck or third distal radius (5,6). Solomon and colleagues did not observe this lack of effect after 6 months of treatment because changes in BMD were explored only at the 12-month time point. Moreover, when administered as a daily subcutaneous injection, teriparatide has been found to increase cortical porosity in the short term (7–9). Increased cortical porosity, predisposing to bone erosions, has been recently described in RA (10).

It should also be noted that, in patients with RA, serum levels of Dkk-1 (a natural inhibitor of Wnt signaling) are significantly increased, correlating with parathyroid hormone levels, and are associated with increased risk of bone erosions and osteoporosis (11). Teriparatide treatment has been shown to increase serum Dkk-1 levels (12); this could be another possible explanation for the inability of teriparatide to heal erosions.

In contrast, better results in preventing bone erosions have been achieved with denosumab, an anti-RANKL antibody (13–15). Denosumab has been associated with a rapid decrease in cortical porosity (16), prevention of metacarpal bone loss (17), and reduction in serum Dkk-1 levels (18). These latter findings are likely the reasons for its better efficacy than teriparatide in preventing and even healing bone erosions, at least in the short term.

ARTHRITIS & RHEUMATOLOGY
Vol. 70, No. 3, March 2018, pp 475–476

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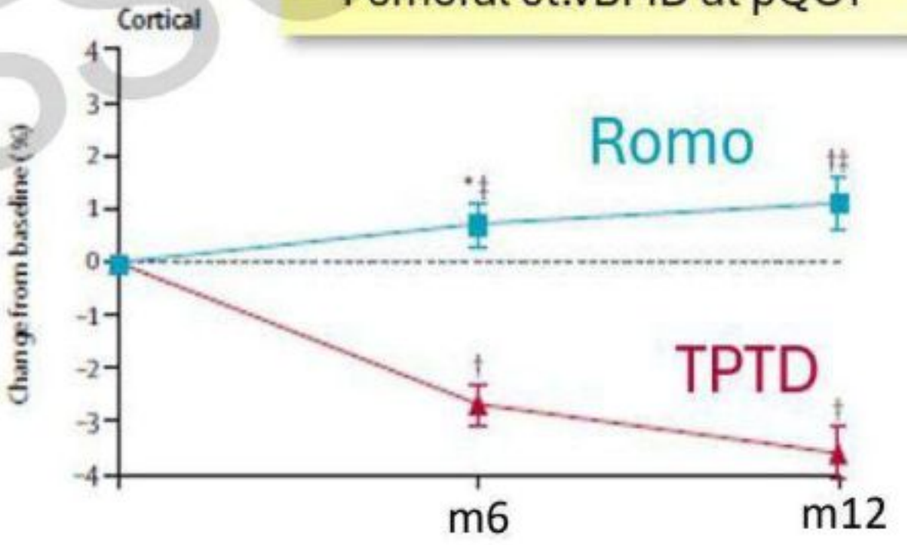
Romosozumab (sclerostin monoclonal antibody) versus teriparatide in postmenopausal women with osteoporosis transitioning from oral bisphosphonate therapy: a randomised, open-label, phase 3 trial

Bente L Langdahl, Cesar Libanati, Daria B Crittenden, Michael A Bolognese, Jacques P Brown, Nadia S Daizadeh, Eva Dokoupilova, Klaus Engelke, Joel S Finkelstein, Harry K Genant, Stefan Goemaere, Lars Hyldstrup, Esteban Jodar-Gimeno, Tony M Keaveny, David Kendler, Peter Lakatos, Judy Maddox, Jorge Malouf, Fabio E Massari, Jose Fernando Molina, Maria Rosa Ulla, Andreas Grauer

Femoral ct.vBMD at pQCT



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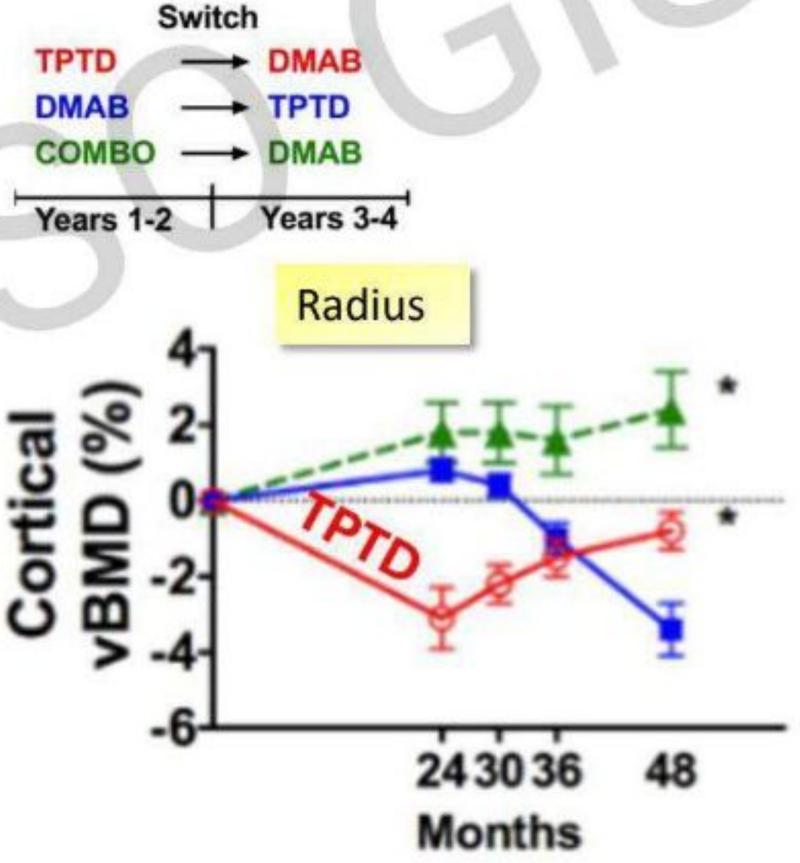
Effects of Denosumab and Teriparatide Transitions on Bone Microarchitecture and Estimated Strength: the DATA-Switch HR-pQCT study

Joy N Tsai,[1] Kyle K Nishiyama,[2] David Lin,[1] Amy Yuan,[1] Hang Lee,[3] Mary L Bouxsein,[4] and Benjamin Z Leder[1]



Journal of Bone and Mineral Research, Vol. 32, No. 10, October 2017