

Osteoporose – behandling eller ikke

Ole Rintek Madsen

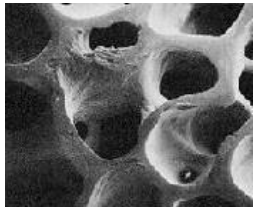
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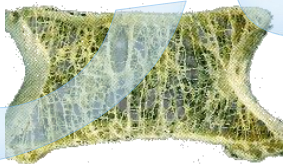
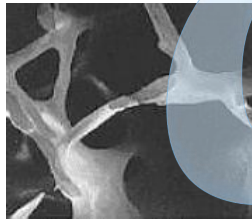
Osteoporose – behandling eller ikke?

- Hvordan stilles diagnosen?
- Hvilke risikofaktorer skal man være opmærksom på?
- Hvilken risiko har patienter med RA og SpA – og hvorfor?
- Hvornår og hvordan behandles osteoporose medicinsk?
- Hvornår kan man pausere med behandlingen?

Definition af osteoporose



En tilstand med nedsat knoglemasse og karakteristiske ændringer i knoglevævet's mikroarkitektur.



Mængden af knoglevæv er nedsat og styrken af knoglevævet er nedsat i en sådan grad, at der let opstår brud.



DXA undersøgelse af knoglevæv

Bruges til at stille diagnose og monitorere behandlingseffekt

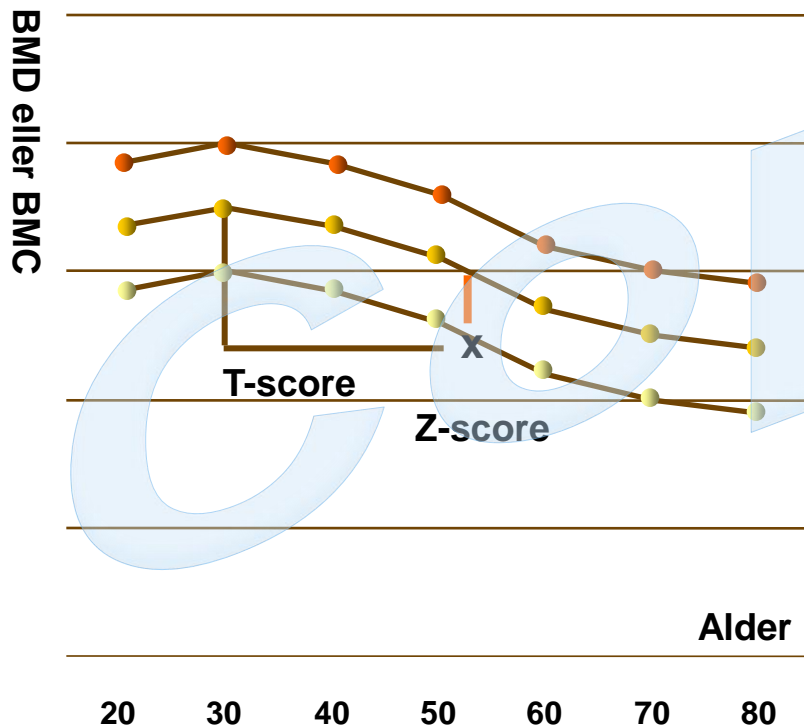


Præcisionsfejl: 1-2%

Akkuratessefejl: 4-10 %

Stråledosis: ca. 1 mikroSv

WHO's definition af osteoporose



Angivelse af BMD eller BMC:

T-score: Afvigelsen (SD) fra unge voksne af samme køn

Z-score: Afvigelsen (SD) fra personer af samme alder og køn

Måling af BMD eller BMC:

Normal: T-score > -1

Osteopeni: T-score < -1 og > -2,5

Osteoporose: T-score < -2,5

Manifest osteoporose: T-score < -2,5 + lavenergi fraktur

Rekvirent
Lægerne, Holte Lægehus

Dronninggårds Alle 13
2840 Holte

OSTEODENSITOMETRI

CPR 200249- [REDACTED]

Navn [REDACTED]

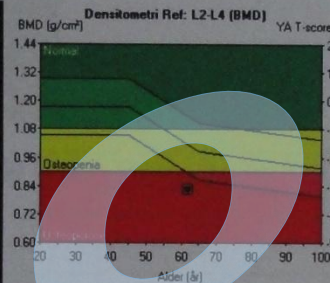
Dato 2010.12.28

U.a. SR/mrj

Årsag til henvisning Osteoporose obs. pro. Lavenergifraktur i håndled.

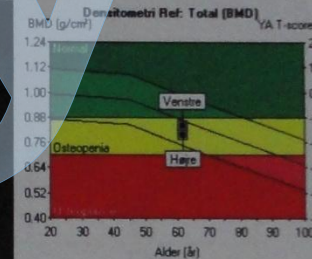
Info mrj

Overflade: 1,66 m² Højde: 166,5 Cm Vægt: 59 Kg iDXA 1



AP Spine

Region	BMD	T-Score	Z-Score
L1	0,755	-3,1	-1,6
L2	0,790	-3,4	-1,9
L3	0,884	-2,6	-1,1
L4	0,801	-3,3	-1,8
L2-L3	0,841	-3,0	-1,5
L2-L4	0,826	-3,1	-1,6
L3-L4	0,840	-3,0	-1,5



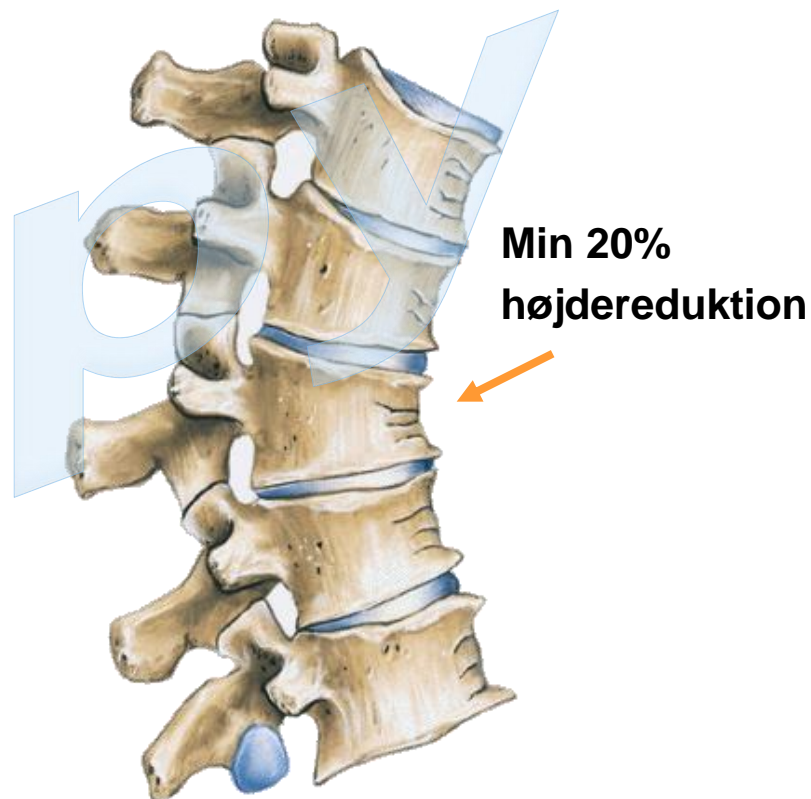
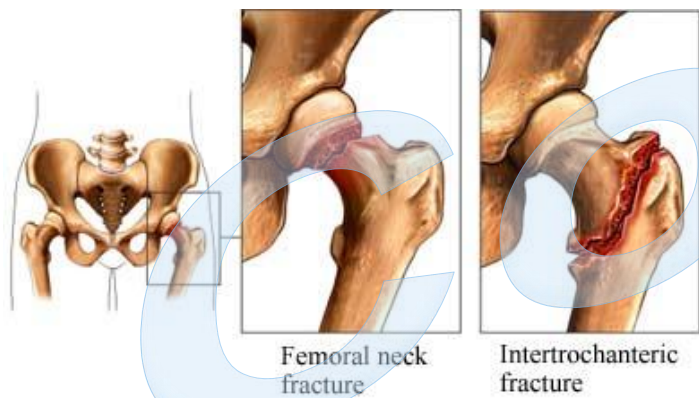
Højre

Region	BMD	T-Score	Z-Score
LÅRBENSHALS	0,713	-2,2	-0,8
TOTAL	0,795	-1,7	-0,6

Venstre

Region	BMD	T-Score	Z-Score
LÅRBENSHALS	0,740	-2,0	-0,6
TOTAL	0,839	-1,3	-0,2

Frakturdefinitionen på osteoporose





Lateral Spine

Region	Gnms højde Cm	Gnms højde %	P/A forhold %	M/P forhold %	A/P forhold %
T8	1.67	96	114	73	88
T9	1.68	93	102	79	98
T10	1.79	93	96	93	104
T11	1.99	97	92	90	109
T12	2.19	98	107	90	94
L1	2.33	98	105	81	96
L2	2.46	100	98	77	102
L3	2.45	97	84	79	119
L4	2.43	97	93	77	108

Konklusion

Svær osteoporose i columna lumbalis.

Lateraloptagelsen kan ikke udelukke flere sammenfald, specielt Th8 og Th9.
 Supplerende billeddannelse i form af røntgen foreslås.

Nedsat knogletæthed i forhold til normale unge voksne (osteopeni) i femora.

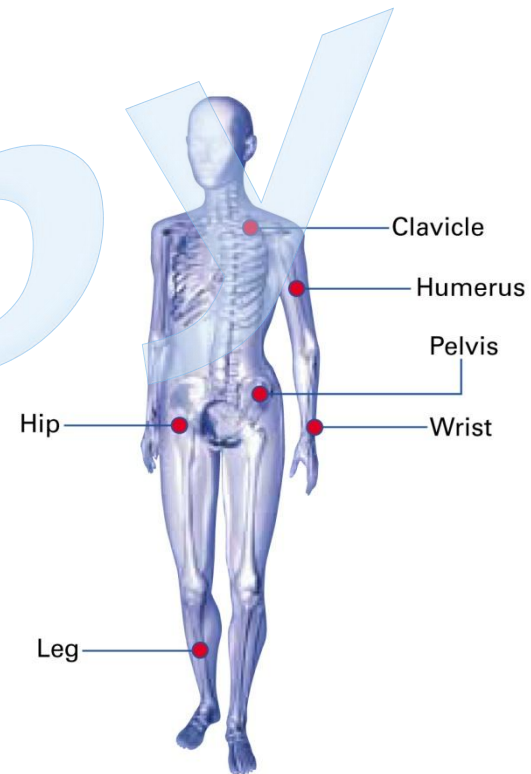
Patienten indkaldes af osteoporoseklinikken til svar og supplerende udredning.

Udredning for osteoporose - lab

Analyser (i blod, serum eller plasma)	Formål
Hgb, Leukocytter, Trombocytter, SR eller CRP Creatinin Calcium ion, PTH 25-OH-vitamin D Basisk fosfatase TSH Testosteron (mænd)	Malignitets mistanke Nyrefunktion Hypo- eller hyperparathyroidisme D-vitamin mangel Øget knogleomsætning Hyper- eller hypothyreodisme Hypogonadisme
Ved tilstedeværende vertebrale frakturer desuden: M-komponent PSA	Myelomatose C. prostatae

Hyppigste osteoporotiske brud

- Vertebrale brud (10.000 pr. år)
- Hoftebrud (10-12.000 pr. år)
- Underarmsbrud (9.000 pr. år)
- Ribben, overarm, tibia



Fakta om osteoporose i Danmark

- 300.000 kvinder har osteoporose
- 4 ud af 5 kvinder med osteoporose er uopdaget
- 100.000 mænd har osteoporose
- 35.000 kvinder rammes hvert år af knoglebrud
- 15% af patienter med brud bliver sat i behandling
- Hoftebrud alene kræver 200.000 sengedage/år
- Osteoporose koster årligt 2 milliarder kroner

Risikofaktorer for osteoporose

- **Høj alder**
- **Arvelig disposition**
- **Lav kropsvægt (BMI<19)**
- **Tidligere lavenergi-fraktur**
- **Tidlig menopause (<45 år)**
- **Rygning**
- **Stort alkohol forbrug**
- **Systemisk behandling med glukokortikoider**
- **Behandling med aromatasehæmmere**

- Sygdomme forbundet med osteoporose:

- **Reumatoid arthritis**
- **Mb. Bechterew**
- Langvarig immobilisation
- Anorexia nervosa
- Malabsorption/Gastrektomi
- Primær hyperparathyreoidisme
- Hyperthyreoidisme
- Organtransplantation
- Kronisk nyreinsufficiens
- Mb. Cushing
- Mastocytose
- Osteogenesis imperfecta
- Myelomatose

10-year fracture prediction by Frax

Country: **Denmark** Name/ID:

Questionnaire:

1. Age (between 40-90 years) or Date of birth
Age: Date of birth: Y: M: D:

2. Sex Male Female

3. Weight (kg)

4. Height (cm)

5. Previous fracture No Yes

6. Parent fractured hip No Yes

7. Current smoking No Yes

8. Glucocorticoids No Yes

9. Rheumatoid arthritis No Yes

10. Secondary osteoporosis No Yes

11. Alcohol 3 or more units per day No Yes

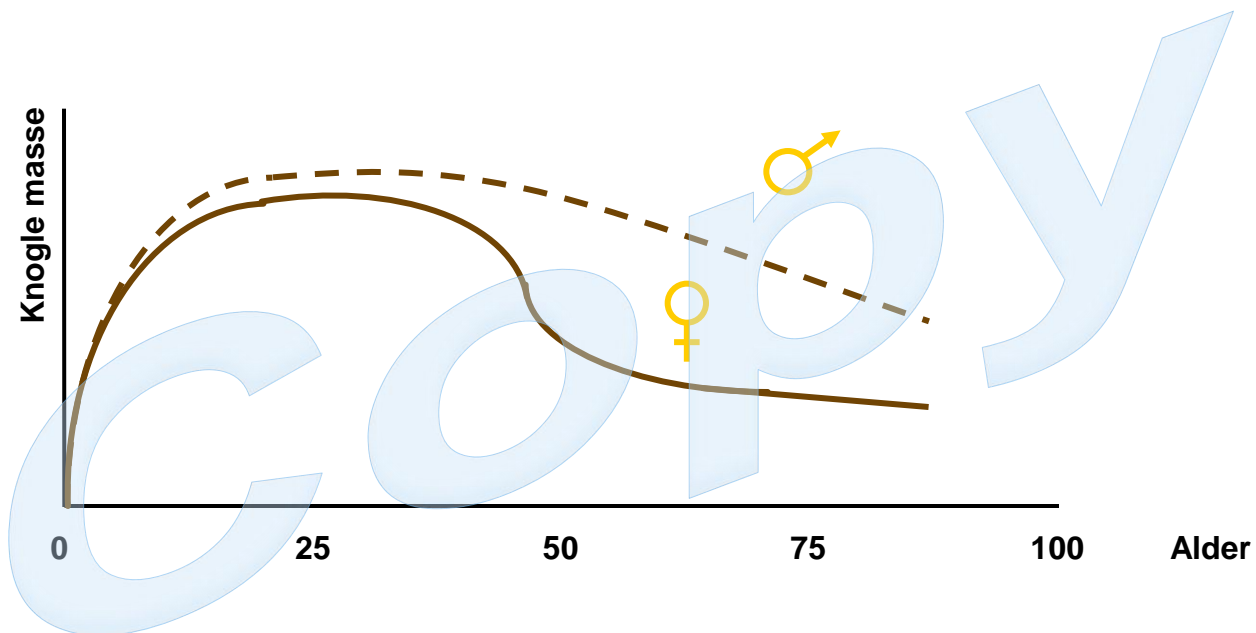
12. Femoral neck BMD (g/cm²)
 T-score: **-2.9**

BMI 16.1
The ten year probability of fracture (%)

with BMD	
■ Major osteoporotic	23
■ Hip fracture	10

Weight Conversion
Pounds **→** Kgs

Height Conversion
Inches **→** Cms



Foreløbet påvirkes af en række faktorer, f.eks. Køn, arv, hormonelle forhold, calciumtilskud og motion

Risikofaktor for osteoporose

Tidligere fraktur

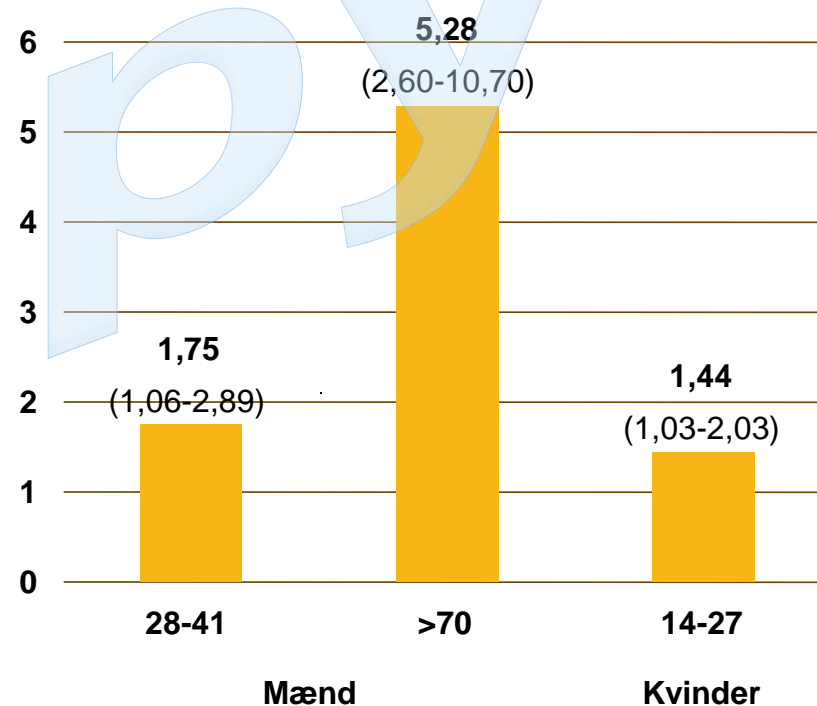
Tidligere fraktur	Nye frakturer	Relativ risiko
Håndled	Hofte	1,5
Humerus	Hofte	2,5
Hofte	Hofte	2,0 – 5,0
En hvirvel	Ny hvirvel	5,0
To hvirvler	Ny hvirvel	12,0

Risikofaktorer for osteoporose

Alkohol

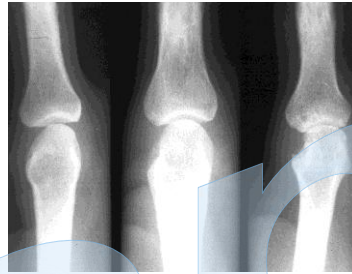
- 17868 mænd
- 13917 kvinder
- 3 befolkningsundersøgelser: 1964-92 i København
- 500 og 307 hoftefrakturer (første) hos henholdsvis kvinder og mænd

Relativ risiko for hoftefraktur afhængig af alkoholindtagelse (genstande pr. uge) sammenlignet med alkoholabstinens



Knogletab ved RA

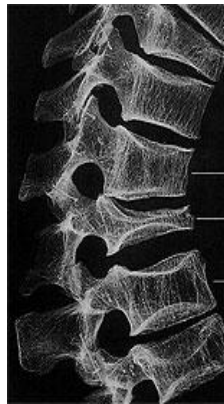
- Juxta-artikulært



- Fokalt (erosioner)



- Systemisk



Knogletab ved SpA

- Lokale knogleerosion
 - sekundær hyperproduktion af knoglevæv
- Systemisk osteoporose

copy

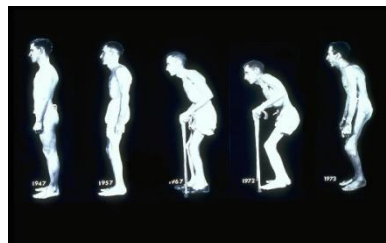
Osteoporose hos patienter med inflammatoriske lidelser

Hvorfor?

- Inflammation
 - Øget TNF-alfa ekspression

Biologics and BMD

- RCTs: 2 (RA: 1, SpA: 1)
- Indication of a modest improvement in BMD
 - ▣ modest increase in bone formation and a decline in bone resorption
- Long-term treatment may reduce the risk of osteoporosis in RA and SpA



Haugeberg G et al. Ann Rheum Dis 2009;68:1898–1901
Visvanathan S et al. Ann Rheum Dis 2009; 68: 175–82

Osteoporose hos patienter med inflammatoriske lidelser

Hvorfor?

- Inflammation
 - Øget TNF-alfa ekspression
- Steroid

Osteoporose hos patienter med inflammatoriske lidelser

Hvorfor?

- Inflammation
 - Øget TNF-alfa ekspression
- Steroid
- Inaktivitet

RA – mange parametre influerer på BMD

- Alder, højde, vægt, fysisk aktivitet
- Sygdomsvarighed
- Sygdommens sværhedsgrad – og aktivitet
 - ▣ Aktuelt og tidligere
 - (DMARDS, HAQ, CRP, antal hævede og ømme led)
- Steroid-behandling
 - ▣ Aktuelt og tidligere
 - Varighed, kumuleret dosis, aktuel dosis, højeste dosis
- Anti-osteoporotisk behandling
 - ▣ Aktuelt og tidligere
 - type, varighed



BMD in RA

- A reduction in BMD of the axial and appendicular skeleton ranging from

7% - 15%

has been reported in several studies using various densitometric techniques.

- Philip Sambrook. Arthritis Res Ther 2007; 9: 107.

Clinical Assessment of the Long-Term Risk of Fracture in Patients With Rheumatoid Arthritis

ARTHRITIS & RHEUMATISM

Vol. 54, No. 10, October 2006, pp 3104–3112

T. P. van Staa,¹ P. Geusens,² J. W. J. Bijlsma,³ H. G. M. Leufkens,⁴
and C. Cooper⁵

Table 1. Characteristics of the patients with rheumatoid arthritis (RA) and control patients

Characteristic	RA patients (n = 30,262)	Controls (n = 90,783)
Age, no. (%)		
40–54 years	8,700 (28.7)	26,109 (28.8)
55–69 years	12,018 (39.7)	36,051 (39.7)
≥70 years	9,544 (31.5)	28,623 (31.5)
Sex, no. (%)		
Female	21,507 (71.1)	64,519 (71.1)
Male	8,755 (28.9)	26,264 (28.9)
Fracture history, no. (%)	3,337 (11.0)	9,152 (10.1)
Total followup, years		
Mean	7.1	7.6
Median	7.5	8.1
Followup after index date, years		
Mean	4.3	4.4
Median	3.8	3.9
Mortality, %		
1 year	3.8	2.3
5 years	17.5	11.8

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Table 2. Risk of fracture in RA patients compared with control patients, according to disease severity or medication use*

	Prevalence of fracture in RA cohort, %	Clinical osteoporotic fracture		Femur/hip fracture		Clinical vertebral fracture	
		Age- and sex-adjusted RR (95% CI)	Fully adjusted RR (95% CI)	Age- and sex-adjusted RR (95% CI)	Fully adjusted RR (95% CI)	Age- and sex-adjusted RR (95% CI)	Fully adjusted RR (95% CI)
RA duration							
<2 years	29.8	1.3 (1.2–1.4)	1.2 (1.1–1.4)	1.6 (1.3–1.9)	1.5 (1.3–1.9)	2.1 (1.6–2.8)	1.9 (1.4–2.5)
2–10 years	45.1	1.5 (1.3–1.6)	1.4 (1.3–1.5)	2.0 (1.7–2.3)	1.8 (1.6–2.1)	2.5 (1.9–3.2)	2.2 (1.7–2.8)
>10 years	25.1	2.1 (1.9–2.3)	1.9 (1.7–2.0)	3.4 (3.0–3.9)	2.9 (2.5–3.3)	4.2 (3.3–5.3)	3.4 (2.7–4.4)
Body mass index†							
<20 kg/m ²	5.7	2.0 (1.7–2.4)	1.9 (1.6–2.2)	3.9 (3.1–4.9)	3.6 (2.9–4.6)	3.1 (2.0–5.1)	2.4 (1.5–3.9)
20–26 kg/m ²	36.6	1.6 (1.5–1.7)	1.5 (1.4–1.7)	2.1 (1.8–2.4)	2.0 (1.7–2.4)	2.7 (2.1–3.4)	2.2 (1.7–2.9)
≥26 kg/m ²	30.8	1.2 (1.0–1.3)	1.1 (1.0–1.2)	1.4 (1.1–1.7)	1.4 (1.1–1.7)	2.0 (1.5–2.8)	1.7 (1.2–2.3)
Use of NSAIDs/aspirin in prior 6 months							
No	38.9	1.5 (1.4–1.7)	1.4 (1.3–1.5)	2.0 (1.8–2.3)	1.8 (1.6–2.1)	2.5 (2.0–3.2)	2.2 (1.7–2.8)
1–2	19.1	1.4 (1.3–1.6)	1.4 (1.2–1.5)	1.9 (1.5–2.3)	1.7 (1.4–2.1)	3.2 (2.4–4.3)	2.8 (2.1–3.8)
>2	42.1	1.7 (1.5–1.8)	1.5 (1.4–1.7)	2.7 (2.3–3.0)	2.3 (2.1–2.7)	2.8 (2.3–3.6)	2.5 (2.0–3.1)
Use of oral glucocorticoids in prior 6 months							
No	76.6	1.3 (1.2–1.4)	1.2 (1.1–1.3)	1.8 (1.6–2.1)	1.7 (1.5–2.0)	1.6 (1.2–1.9)	1.5 (1.2–1.9)
1–2	6.6	1.9 (1.6–2.2)	1.7 (1.4–2.0)	2.6 (2.0–3.4)	2.3 (1.7–3.0)	3.8 (2.5–5.8)	2.9 (1.9–4.4)
>2	16.8	2.6 (2.4–2.9)	2.3 (2.1–2.5)	3.4 (3.0–4.0)	2.8 (2.4–3.3)	7.1 (5.7–8.8)	5.5 (4.4–6.8)
Use of disease-modifying antirheumatic agents in prior 6 months							
No	62.2	1.6 (1.5–1.7)	1.5 (1.4–1.6)	2.1 (1.9–2.4)	1.9 (1.7–2.1)	2.6 (2.1–3.1)	2.3 (1.9–2.8)
1–2	10.9	1.5 (1.3–1.8)	1.4 (1.2–1.6)	2.5 (1.9–3.3)	2.2 (1.7–2.9)	3.8 (2.7–5.5)	3.3 (2.3–4.7)
>2	26.8	1.6 (1.4–1.8)	1.5 (1.4–1.7)	2.6 (2.2–3.1)	2.3 (2.0–2.8)	3.0 (2.3–3.9)	2.5 (1.9–3.3)
Hospitalization for musculoskeletal disorder in previous year							
No	96.9	1.5 (1.4–1.6)	1.4 (1.4–1.5)	2.2 (1.9–2.4)	2.0 (1.8–2.2)	2.6 (2.2–3.1)	2.3 (1.9–2.8)
Yes	3.1	2.5 (2.1–3.1)	2.1 (1.7–2.6)	4.4 (3.3–6.1)	3.4 (2.5–4.6)	7.6 (4.9–11.6)	5.5 (3.6–8.5)
Prior arthroplasty							
No	88.5	1.5 (1.4–1.6)	1.4 (1.3–1.5)	2.0 (1.8–2.3)	1.9 (1.7–2.1)	2.6 (2.2–3.1)	2.3 (1.9–2.8)
Knee	6.9	2.1 (1.8–2.4)	1.9 (1.7–2.2)	3.5 (2.8–4.4)	3.1 (2.5–4.0)	2.6 (1.7–4.1)	2.3 (1.5–3.6)
Hip	6.0	1.5 (1.2–1.7)	1.3 (1.1–1.6)	1.5 (1.1–2.0)	1.3 (1.0–1.7)	2.1 (1.3–3.4)	1.7 (1.1–2.8)

BMD and fracture risk in AS

- BMD is reduced at the hip and spine.
 - Will et al. Lancet 1989; 2: 1483
- BMD is more reduced at the hip.
 - Karberg et al. J Rheumatol 2005; 32: 1184.
 - Donnelly et al. Ann Rheum Dis 1994; 53: 117.
- BMD at the spine may be overestimated due to syndesmophytes.
 - Karberg et al. J Rheumatol 2005; 32: 1184.
 - Donnelly et al. Ann Rheum Dis 1994; 53: 117.
- Vertebral fracture seems to be 7-fold increased compared to general population – but only in men.
 - Cooper et al. J Rheumatol 1994; 21: 1877-82
- The effect of antiresortive agents on BMD or fracture risk has not yet been examined.





Kriterier for medicinsk behandling

- Dokumenteret osteoporotisk fraktur i hofte eller ryg (> 20 %)
- T-score < -2,5 kombineret med en eller flere risikofaktorer
- T-score < -4
- T-score < -1 hos patienter i behandling med binyrebarkhormon sv.t. prednisolon mindst 5 mg i min. 3 måneder indenfor et år

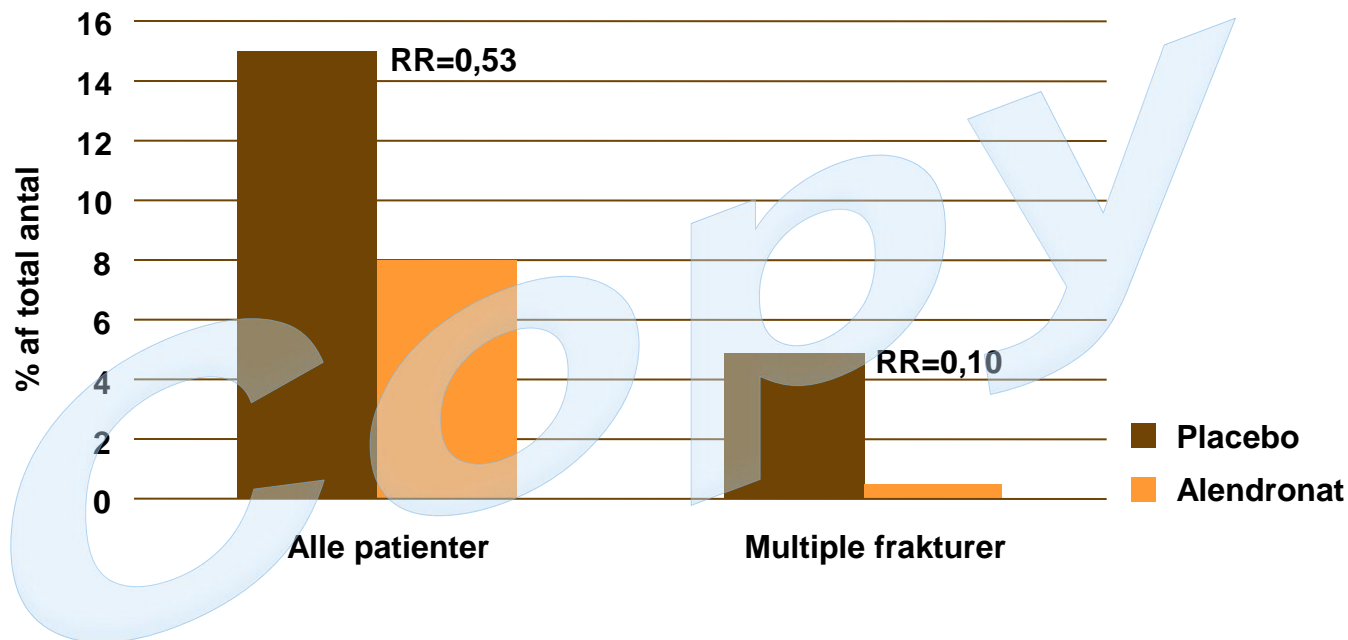
Udløser til skud fra Lægemiddelstyrelsen til bisfosfonater, strontium ranelat, SERM og denosumab

Medical treatment of OP

- Bisphosphonates
 - ▣ Alendronate (orally, daily or weekly)
 - ▣ Risedronate (orally, daily or weekly)
 - ▣ Ibandronate (orally, monthly or iv every 3. month)
 - ▣ Zoledronic acid (iv once a year)
- Denosumab (sc biannually)
- SERM – selective estrogen receptor modulator
 - ▣ Raloxifen (orally, daily)
- DABA - dual action bone agent
 - ▣ Strontium ranelate (orally, daily)
- Anabolic agents
 - ▣ Teriparatide (sc, daily 18-24 months)
 - ▣ PTH (1-84) (sc, daily 18-24 months)

Bisfosfonater

Effekten af Alendronat på vertebrale frakturer



Reduktion i antal patienter med nye frakturer hos alle inkluderede patienter: 47%

RR: 0,53

Reduktion i antal patienter med nye frakturer hos alle med 2 eller flere frakturer: 90%

Alendronate in RA patients

Osteoporos Int (2006) 17: 716–723
DOI 10.1007/s00198-005-0037-2

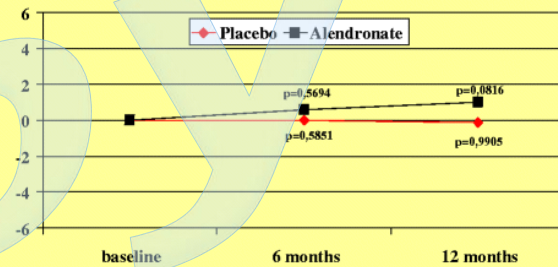
ORIGINAL ARTICLE

Positive effect of alendronate on bone mineral density and markers of bone turnover in patients with rheumatoid arthritis on chronic treatment with low-dose prednisone: a randomized, double-blind, placebo-controlled trial

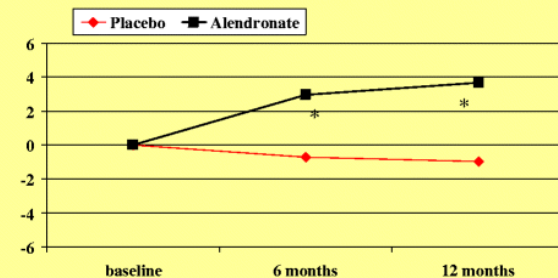
W. F. Lems · M. C. Lodder · P. Lips ·
J. W. J. Bijlsma · P. Geusens · N. Schrameijer ·
C. M. van de Ven · B. A. C. Dijkmans

Rintek 2012

% changes in BMD at the Hip in RCT in RA-patients, chronically treated with low dose prednisone (< 10 mg/day)



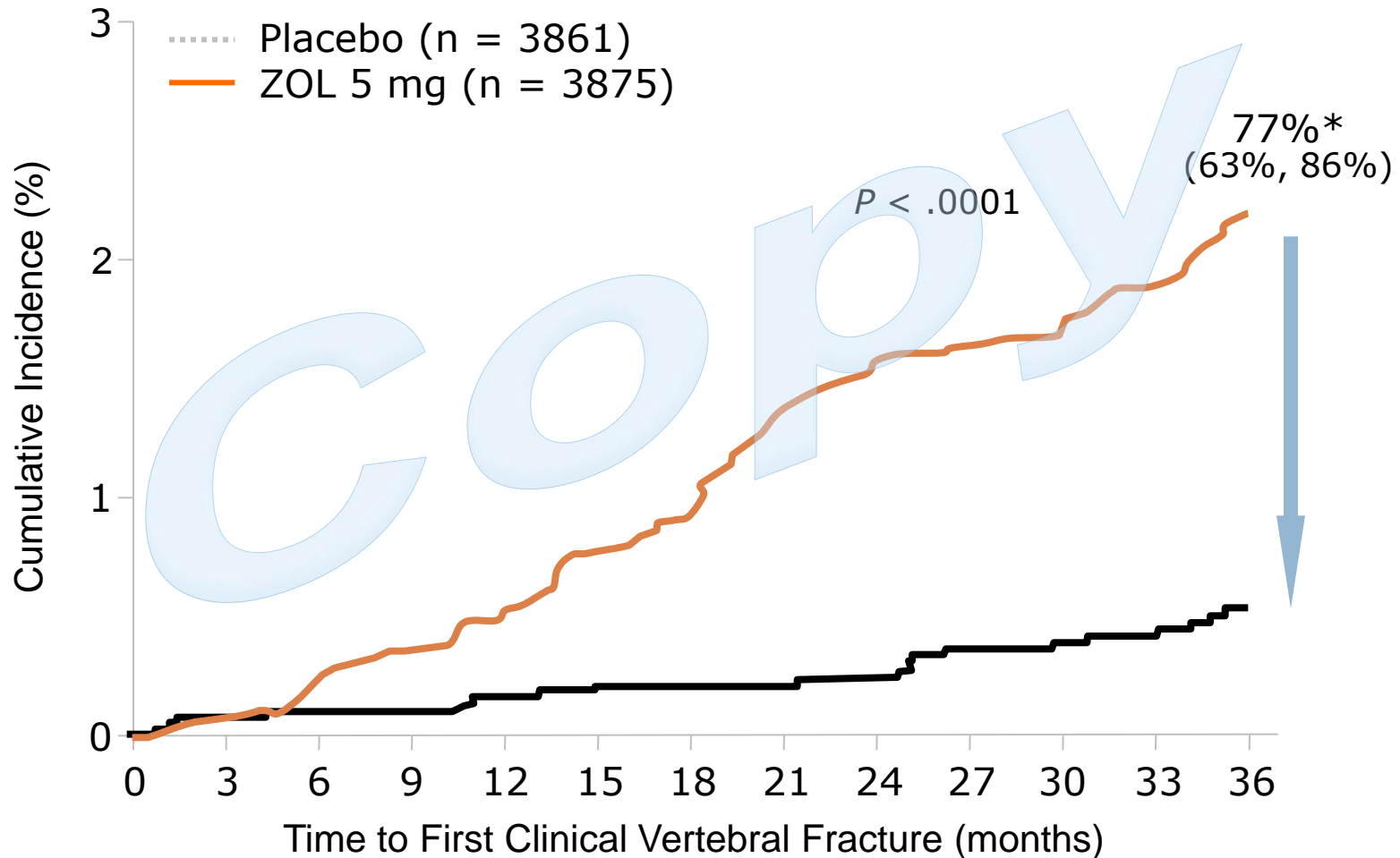
% changes in BMD of Lumbar Spine in RCT in RA-patients, chronically treated with low dose prednisone (< 10 mg/day)



** : p < 0.001

Zoledronic Acid

Cumulative 3-Year Risk of Clinical Vertebral Fractures (Strata I + II)

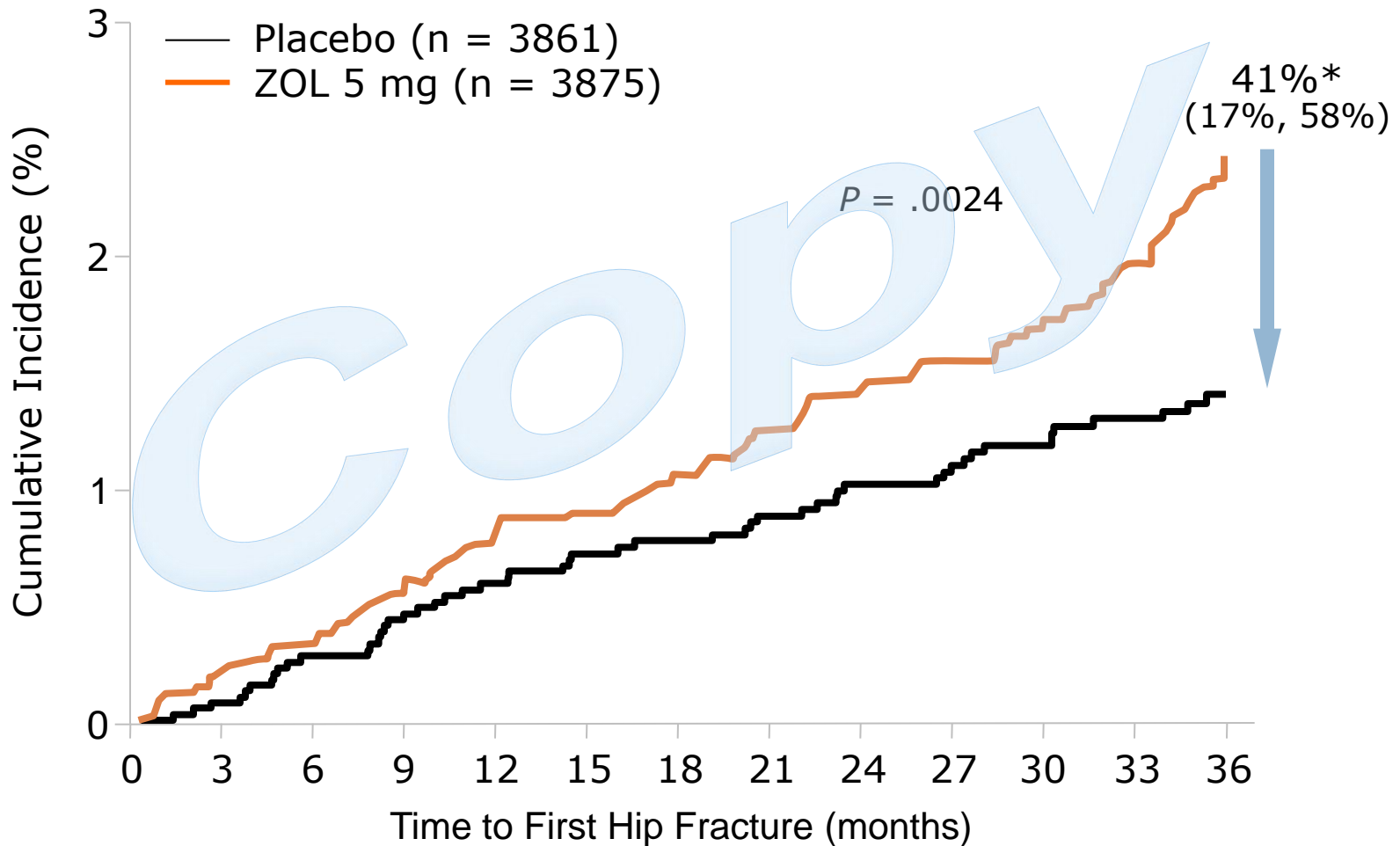


*Relative risk reduction vs placebo (95% confidence interval)

Adapted from Black DM, et al. *N Engl J Med.* 2007;356:1809-1822.

Zoledronic Acid

Cumulative 3-Year Risk of Hip Fractures (Strata I + II)

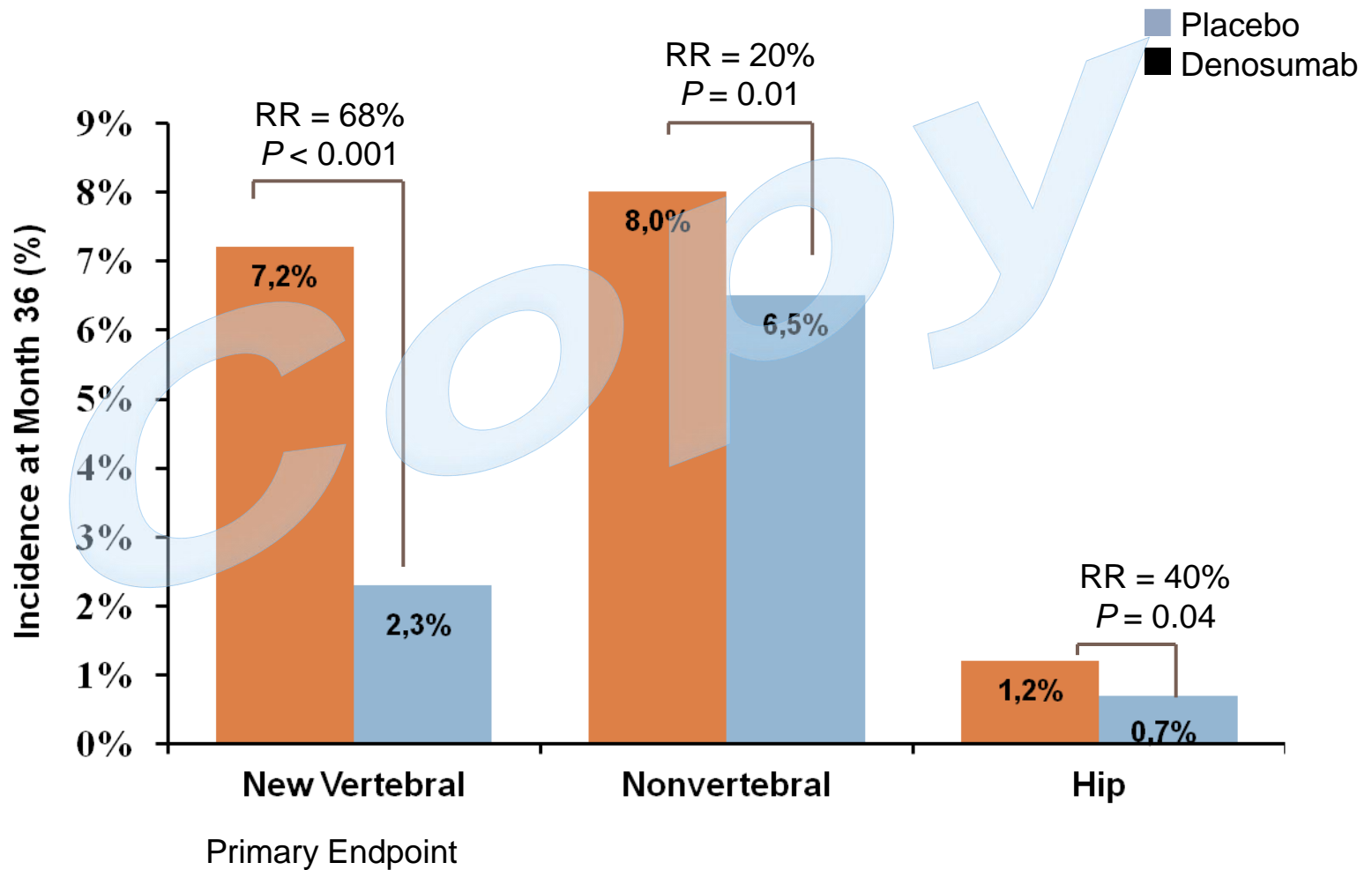


*Relative risk reduction vs placebo (95% confidence interval)

Adapted from Black DM, et al. *N Engl J Med.* 2007;356:1809-1822.

Denosumab

Fracture risk reduction after 36 months of treatment



Denosumab vs. alendronate

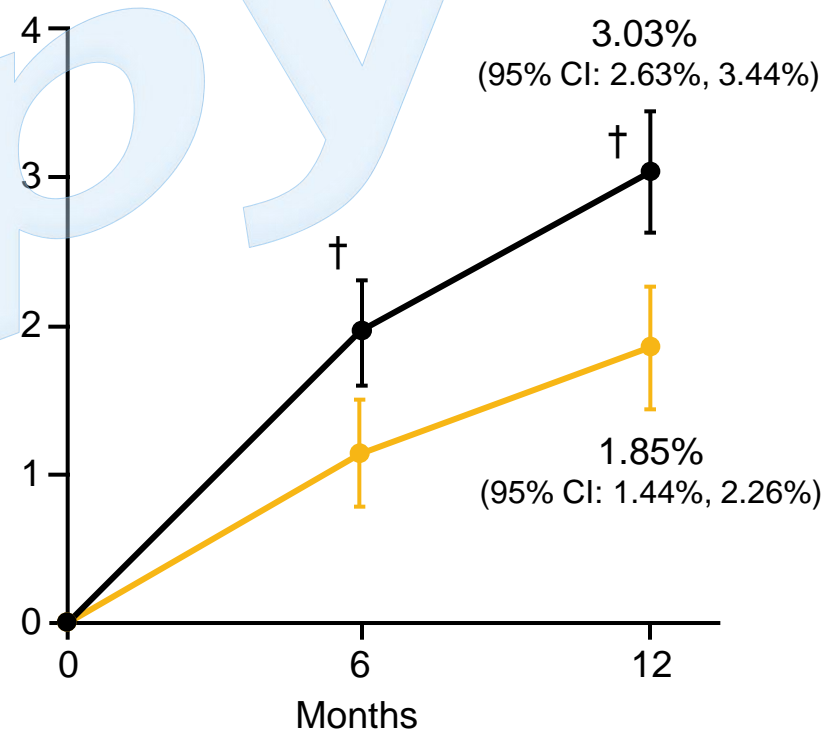
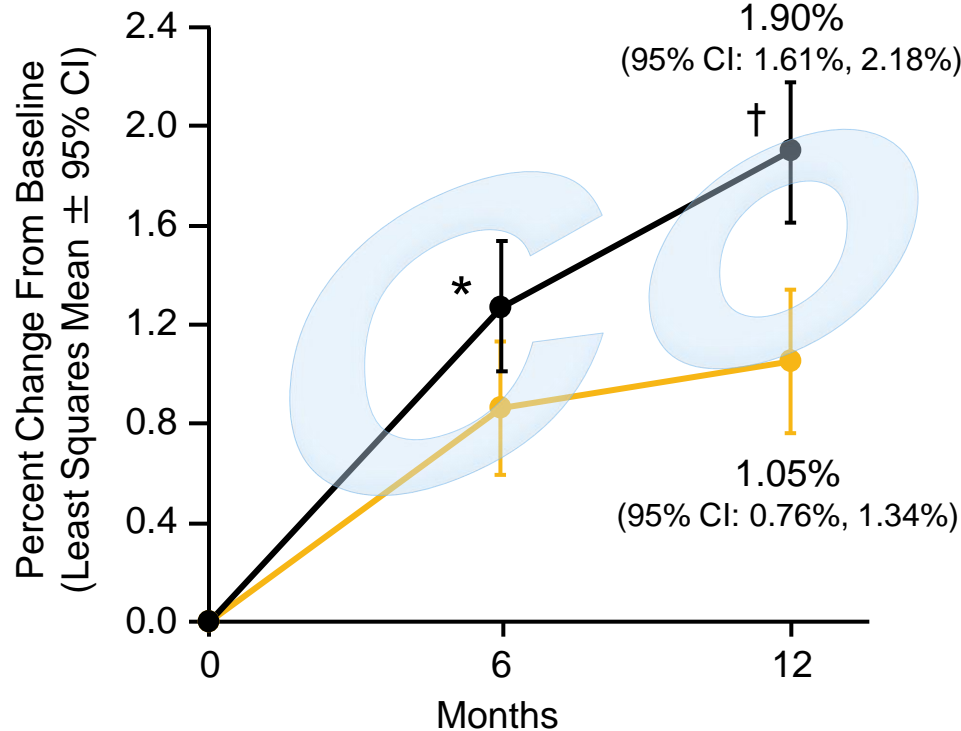
Effect on BMD

—●— Alendronate 70 mg QW (n = 241)

—●— Denosumab 60 mg Q6M (n = 246)

Total Hip (primary endpoint)

Lumbar Spine (secondary endpoint)



n = number of patients who have a baseline and ≥ 1 postbaseline evaluation.

* $P < 0.05$; † $P < 0.01$.

CI = confidence interval

Adapted from: Kendler DL, et al. *J Bone Miner Res.* 2010;25:72-81

Rintek 2012

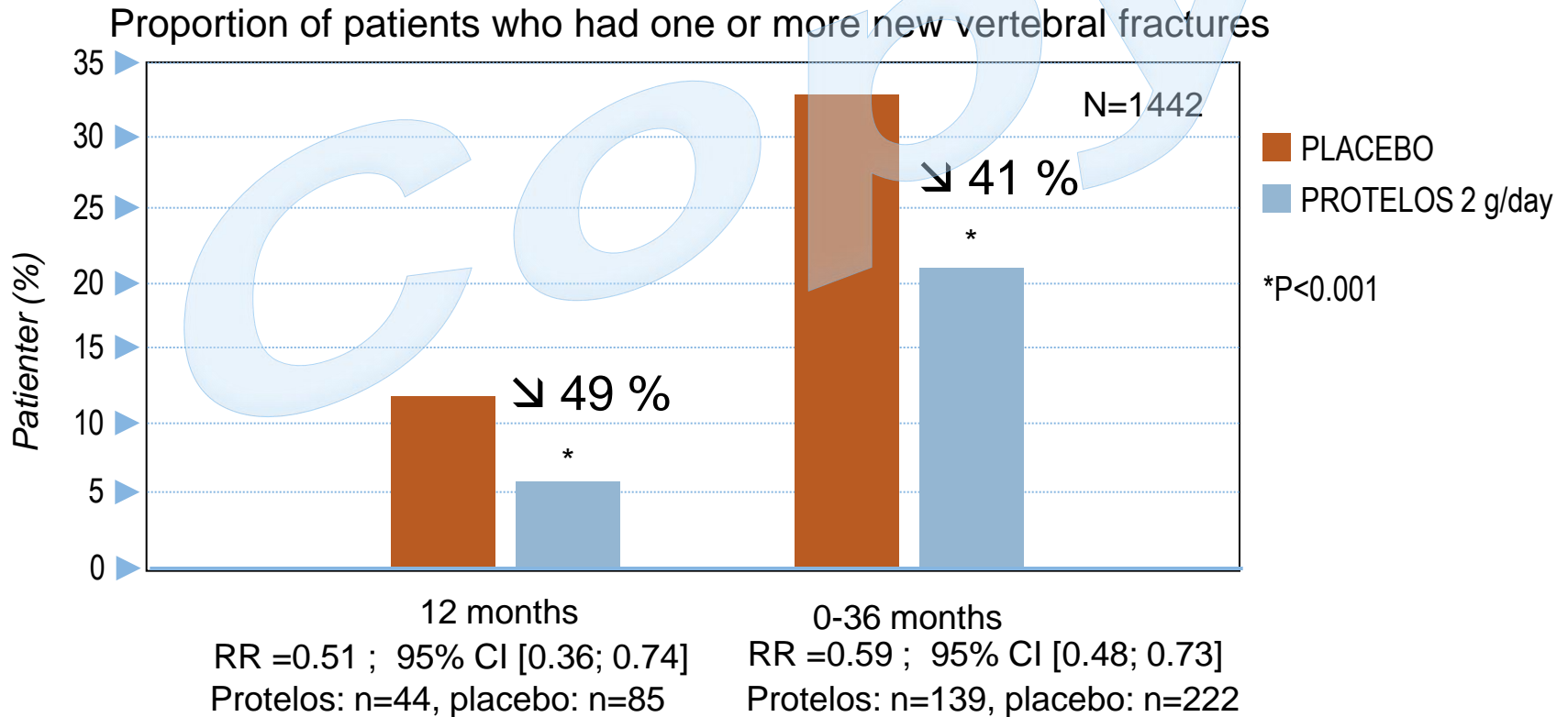
Strontium ranelate – "DABA"

Cumulative 3-year fracture risk reduction in vertebral fractures

Pivotal phase III trial

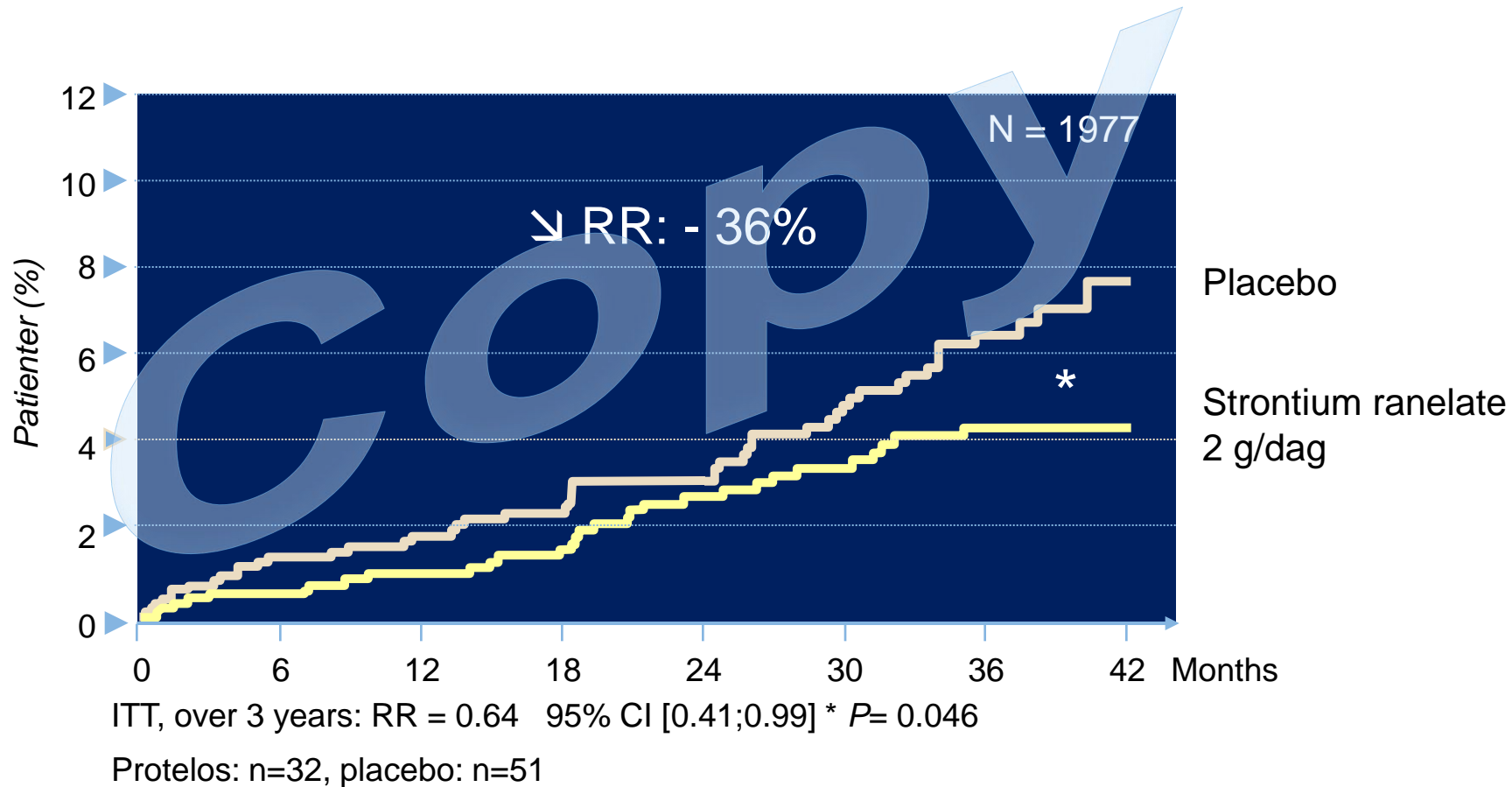
Women with severe osteoporosis:

Vertebral fractures **and** low BMD



Strontium ranelate – "DABA"

Cumulative 3-year risk of hip fracture

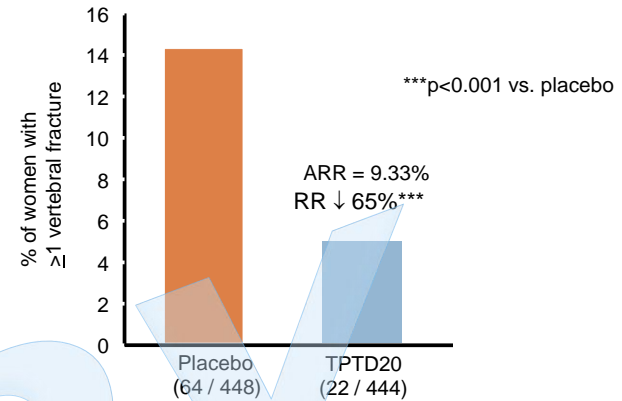


Anabolic agents

- PTH analogues

- Teriparatide and PTH
- Daily subcutaneous injection for 18-24 months
- No proven effect on hip fractures (teri: non-vert.)
- Expensive
- NICE says in treatment failure (TA161)¹
 - ▣ Unable to take antiresorptives OR
 - ▣ Continued loss of bone OR new fracture despite antiresorptive AND
 - ▣ T-score < -3.5 or < -4.0 (depend on age and fracture history)
- Denmark:
 - ▣ T-score < -3 and 1 spinal fracture (height reduction > 25%) OR
 - ▣ At least 2 vertebral fractures (height reduction > 25%)

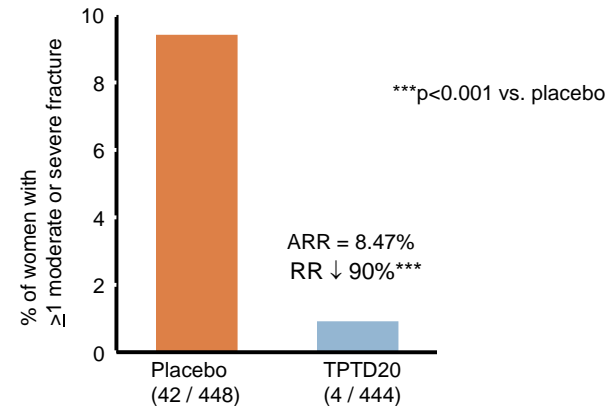
Effect of Teripartide on the risk of new vertebral fractures



Neer et al. N Engl J Med 2001;344(19):1434-1441

RR = relative risk vs. placebo
ARR = absolute risk reduction

Effect of Teripartide on the risk of moderate or severe vertebral fractures



Neer et al. N Engl J Med 2001;344(19):1434-1441

RR = relative risk vs. placebo
ARR = absolute risk reduction

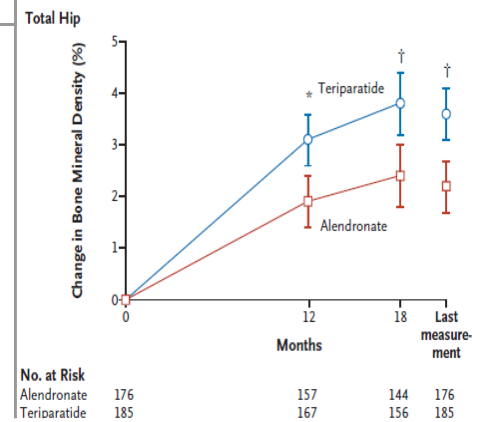
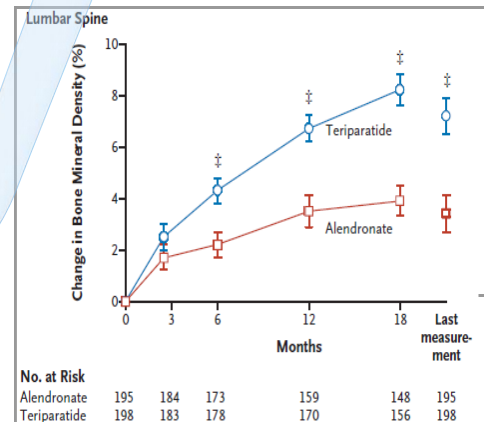
Teriparatide or Alendronate in Glucocorticoid-Induced Osteoporosis

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.

18-month randomized, double-blind, controlled trial. Teriparatide compared with alendronate in 428 women and men with osteoporosis who had received glucocorticoids for at least 3 months (prednisone equivalent, 5 mg daily or more).

Variable	Alendronate (N=214)	Teriparatide (N=214)
Underlying glucocorticoid-requiring disorders — no. (%)		
Rheumatologic disorders	161 (75.2)	161 (75.2)
Rheumatoid arthritis	111 (51.9)	98 (45.8)
Systemic lupus erythematosus	21 (9.8)	28 (13.1)
Polymyalgia rheumatica	8 (3.7)	10 (4.7)
Vasculitis	3 (1.4)	5 (2.3)
Other rheumatic disorders	18 (8.4)	20 (9.3)
Respiratory disorders	31 (14.5)	29 (13.6)
Inflammatory bowel disease	4 (1.9)	3 (1.4)
Other conditions	18 (8.4)	21 (9.8)

Variable	Alendronate (N=214)	Teriparatide (N=214)	P Value
Fractures			
Vertebral — no./total no. (%) [*]			
Radiographic evidence	10/165 (6.1)	1/171 (0.6)	0.004
Clinical evidence [†]	3/165 (1.8)	0	0.07
Nonvertebral — no. (%) [‡]			
Any	8 (3.7)	12 (5.6)	0.36
Nonvertebral fragility	3 (1.4)	5 (2.3)	0.46



Valg af behandling

- **Alm. postmenopausal**
 - Alendronat - 1. valg
 - Prolia - 2. valg
 - Aclasta - 3. valg

- **Steroid-induceret OP**
 - Alendronat - 1. valg
 - Aclasta - 2. valg
 - Prolia - 2. eller 3. valg?

- **Svær manifest spinal OP, herunder steroid-induceret**
 - PTH-analog (teriparatid - Forsteo)

- **Kalk og D- vitamin tilskud efter behov til alle**

Drug holiday?

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 Ann V. Schwartz, PhD
 Kristine E. Ensrud, MD, MPH
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 Silvina Levis, MD
 Sara A. Quandt, PhD
 Suzanne Satterfield, MD
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 for the FLEX Research Group

Effects of Continuing or Stopping Alendronate After 5 Years of Treatment

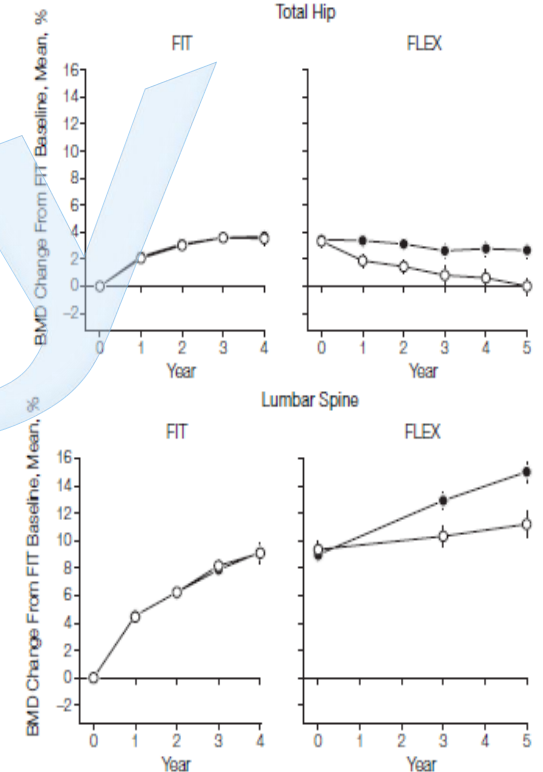
The Fracture Intervention Trial Long-term Extension (FLEX): A Randomized Trial

Those with T scores lower than -3.5 or who had lost bone density during the first 5 years were excluded.

Table 3. Incidence of Fracture by Treatment Group

Fractures	Placebo, No. (%) (n = 437)	Pooled Alendronate, No. (%) (n = 662)	Relative Risk (95% Confidence Interval)*
Vertebral			
Clinical	23 (5.3)	16 (2.4)	0.45 (0.24-0.85)
Morphometric	46 (11.3)	60 (9.8)	0.86 (0.60-1.22)
Clinical			
Any	93 (21.3)	132 (19.9)	0.93 (0.71-1.21)
Nonspine	83 (19.0)	125 (18.9)	1.00 (0.76-1.32)
Hip	13 (3.0)	20 (3.0)	1.02 (0.51-2.10)
Forearm	19 (4.3)	31 (4.7)	1.09 (0.62-1.96)

*Adjusted for clinic and stratum.



These results suggest that for many women, discontinuation of alendronate for up to 5 years does not appear to significantly increase fracture risk. However, women at very high risk of clinical vertebral fractures may benefit by continuing beyond 5 years.

Drug holiday?

CLINICAL TRIALS

JBMR

Efficacy of Continued Alendronate for Fractures in Women With and Without Prevalent Vertebral Fracture: The FLEX Trial

Ann V Schwartz,¹ Douglas C Bauer,² Steven R Cummings,³ Jane A Cauley,⁴ Kristine E Ensrud,^{5,6} Lisa Palermo,¹ Robert B Wallace,⁷ Marc C Hochberg,⁸ Adrienne C Feldstein,⁹ Antonio Lombardi,¹⁰ and Dennis M Black¹ for the FLEX Research Group

Table 2. Continuing or Discontinuing ALN Treatment and Risk of Fracture Stratified by Baseline Presence of Vertebral Fracture and Femoral Neck T-Score

Femoral neck T-score at FLEX baseline	Nonvertebral			Morphometric vertebral			
	No.	Pbo, No. (%) ^a	Aln, No. (%) ^b	Relative risk ^c (95% CI)	Pbo, No. (%) ^a	Aln, No. (%) ^b	Relative risk ^d (95% CI)
NVF at FLEX baseline							
-2 < FLEX FN T-score	333	14 (10.8)	30 (14.8)	1.41 (0.75-2.66)	7 (5.7)	9 (4.8)	0.84 (0.30-2.31)
-2.5 < FLEX FN T-score ≤ -2	203	13 (15.9)	15 (12.4)	0.79 (0.37-1.66)	6 (7.6)	6 (5.4)	0.69 (0.21-2.22)
FLEX FN T-score ≤ -2.5	184	21 (28.0)	16 (14.7)	0.50 (0.26-0.96)	8 (11.0)	8 (7.7)	0.68 (0.24-1.90)
p Value for interaction ^e				.019			.92
Vertebral fracture at FLEX baseline:							
-2 < FLEX FN T-score	128	4 (8.2)	12 (15.2)	1.68 (0.54-5.21)	2 (4.7)	9 (11.5)	2.67 (0.55-12.98)
-2.5 < FLEX FN T-score ≤ -2	108	13 (29.5)	23 (35.9)	1.32 (0.67-2.61)	9 (23.1)	11 (17.7)	0.72 (0.27-1.93)
FLEX FN T-score ≤ -2.5	138	18 (31.6)	27 (33.3)	1.11 (0.61-2.02)	14 (27.5)	17 (25.4)	0.90 (0.39-2.05)
p Value for interaction ^e				.60			.96

Continuing ALN for 10 years instead of stopping after 5 years:

- reduces NVF risk in women without prevalent vertebral fracture whose FN T-scores, achieved after 5 years of ALN, are -2.5 or less
- does not reduce risk of NVF in women whose T-scores are greater than -2

Kriterier for medicinsk behandling

- Dokumenteret osteoporotisk fraktur i hofte eller ryg ($> 20\%$)
- T-score $< -2,5$ kombineret med en eller flere risikofaktorer
- T-score < -4
- T-score < -1 hos patienter i behandling med binyrebark-hormon sv.t. prednisolon mindst 5 mg dgl. i forventet min. 3 måneder indenfor et år

Behandlingsvarighed

- Revurder patienten efter 5 år
 - Fortsæt behandlingen hvis
 - T-score $< -2,5$ og/eller
 - tidl. spinalt sammenfald og/eller
 - tidl. hoftefraktur og/eller
 - steroidbehandling (> 5 mg dgl. og T-score < -1)
 - Pauser behandlingen hvis
 - T-score $> -2,5$ og
 - aldrig spinalt sammenfald eller hoftefraktur
- Husk DXA hver 12. – 24. måned

Tak for opmærksomheden

