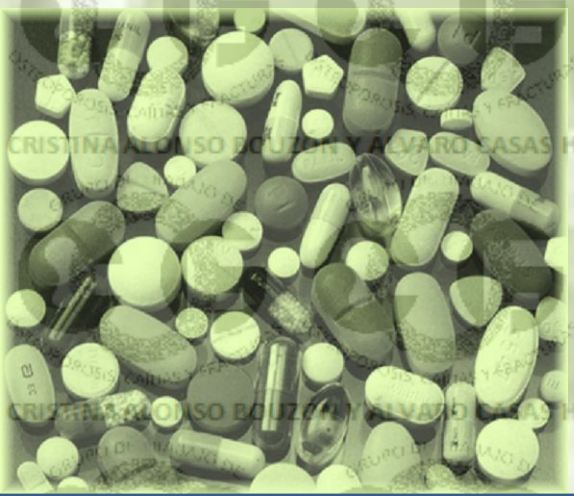
Hospital Universitario de Getafe

ACTUALIZACIÓN EN EL TRATAMIENTO DE LA OSTEOPOROSIS EN EL ANCIANO



Cristina Alonso
Álvaro Casas
Grupo de OP, Caídas y Fracturas SEGG

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- Introducción:
  - Objetivo del tratamiento antiosteoporótico.
  - ¿Qué implica ese objetivo?
  - ¿Hasta cuando tratar?
  - ¿Cuándo cambiar?
- Arsenal terapéutico actual.
- Hot topics 2011-12.
- Conclusiones.

Introducción I: **Objetivo del tratamiento**

REDUCCIÓN DE FRACTURAS:
DEPENDENCIA Y MORTALIDAD

FRACTURA DE CADERA

Introducción II: ¿Qué implica este cambio de paradigma?

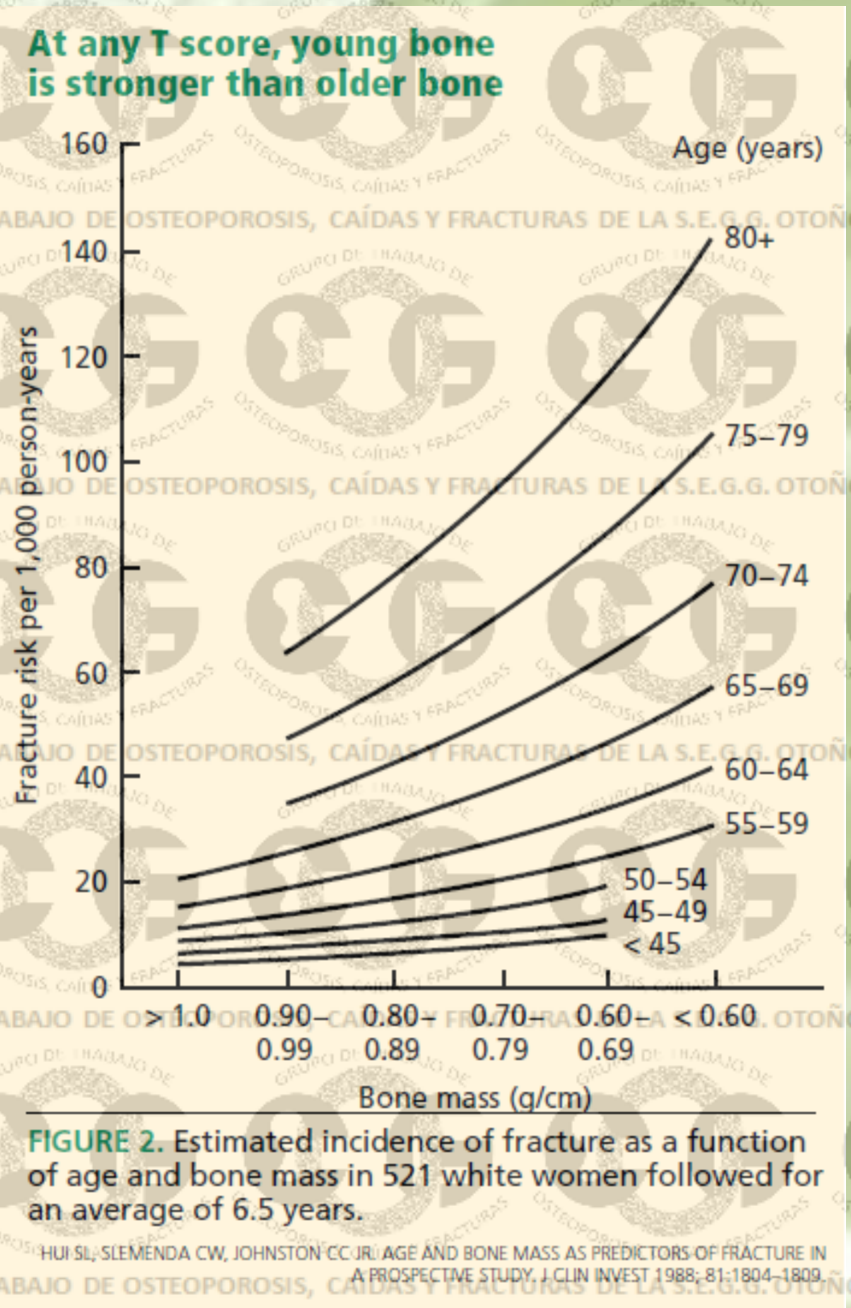


FIGURE 2. Estimated incidence of fracture as a function of age and bone mass in 521 white women followed for an average of 6.5 years.

HUI SL, SLEMENDA CW, JOHNSTON CC JR. AGE AND BONE MASS AS PREDICTORS OF FRACTURE IN A PROSPECTIVE STUDY. J CLIN INVEST 1988; 81:1804–1809.

Influence of fall related factors and bone strength on fracture risk in the frail elderly

P. N. Sambrook · I. D. Cameron · J. S. Chen · R. G. Cumming · S. R. Lord · L. M. March · J. Schwarz · M. J. Seibel · J. M. Simpson

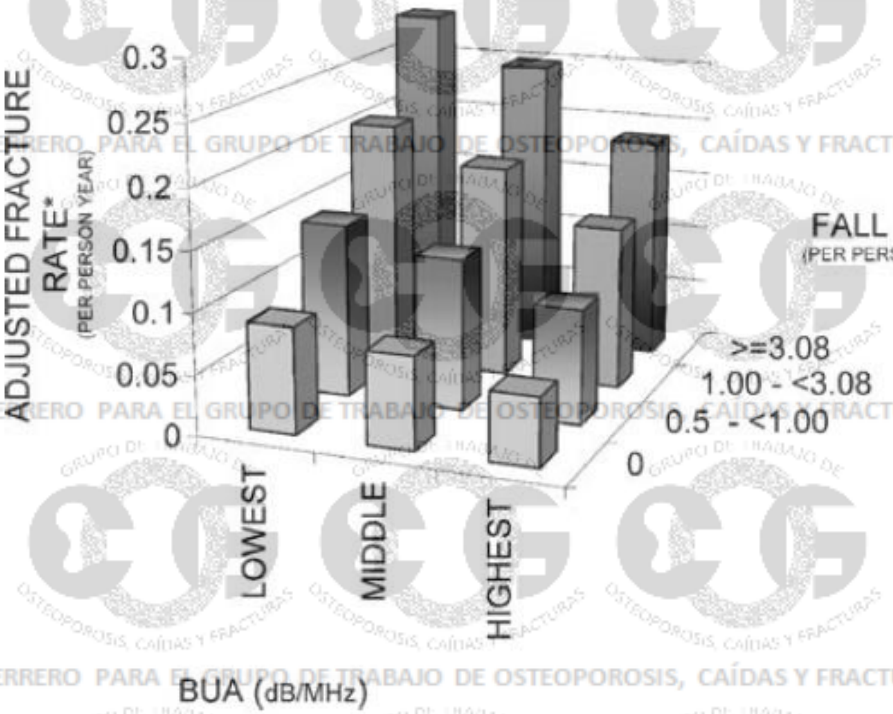
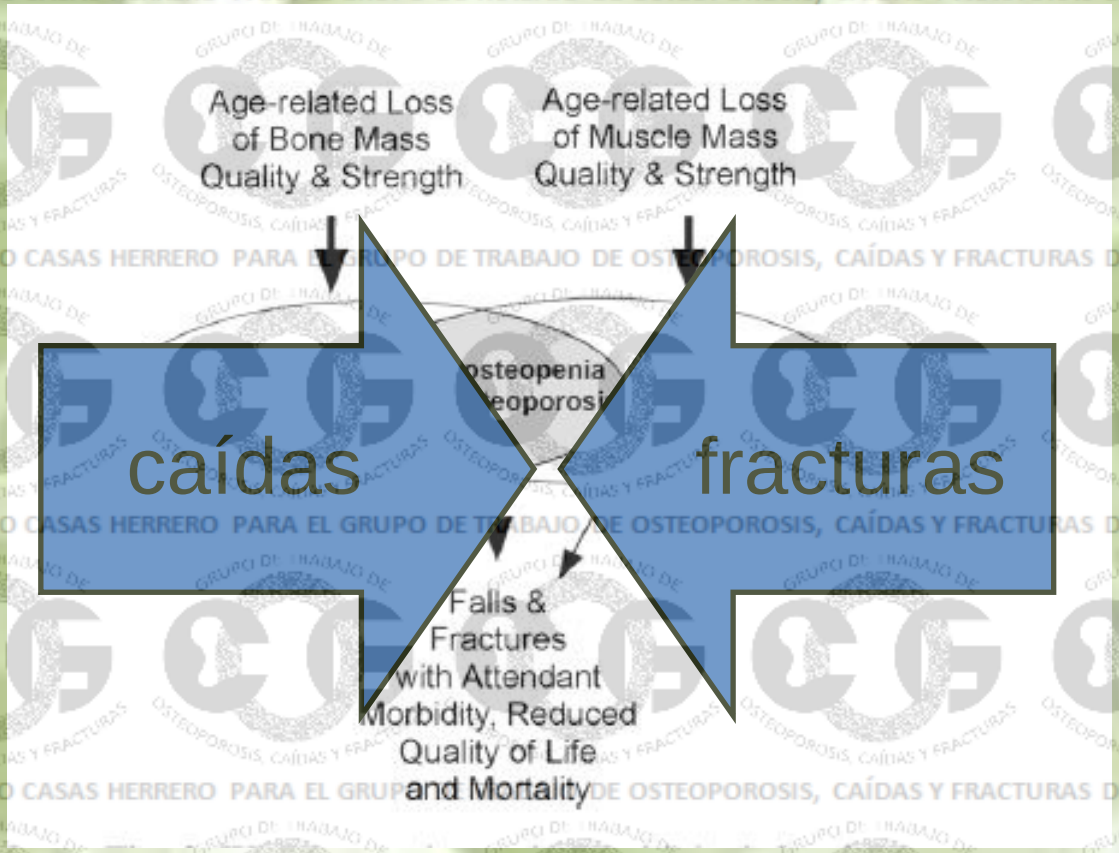


Fig. 2 Adjusted risk of fracture according to tertiles of BUA and incident fall rate. The method of negative binomial regression was used to adjust for age, weight, balance, lower leg length, cognitive function and residential care type

Osteoporosis Int 2007. 18:603-610.



Binkley N, Buehring B. Journal of clinical densitometry: Assessment of skeletal health. 2009: 12 (4): 413-6.

FRAX Herramienta de Evaluación de Riesgo de Fractura desarrollada por la Organización Mundial de la Salud (OMS) - Mozilla Firefox

Archivo Editar Ver Historial Marcadores Herramientas Ayuda

http://www.sheffield.ac.uk/FRAX/

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FRAX®

Herramienta de Evaluación de Riesgo de Fractura desarrollada por la Organización Mundial de la Salud (OMS)

Inicio | Herramienta de Cálculo | Tablas | FAQ | Referencias

Recepción a FRAX®

La herramienta FRAX® ha sido desarrollado por la OMS para evaluar el riesgo de fractura en pacientes. Se basa en modelos individuales que combinan e integran factores clínicos de riesgo con la densidad mineral ósea (DMO) del cuello femoral.

Dr. John A Kanis
Professor Emeritus,
University of Sheffield

Los modelos FRAX® se han desarrollado a partir del estudio de grupos poblacionales de Europa, América del Norte, Asia y Australia.

La herramienta FRAX® es un programa informático que se encuentra disponible en esta WEB. También se pueden descargar otras versiones simplificadas que utilizan los factores de riesgo que haya disponibles.

Los algoritmos de FRAX® calculan la probabilidad de fractura a 10 años, proporcionando la probabilidad de fractura de cadera y de las fracturas osteoporóticas más importantes a 10 años (fractura clínica vertebral, antebrazo, cadera u hombro).

Web Version

View Release Note

Links

www.iofbonehealth

www.nof.org

www.jpof.or.jp

www.esceo.org

FRAX Herramienta de Evaluación de Riesgo de Fractura desarrollada por la Organización Mundial de la Salud (OMS) - Mozilla Firefox

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http://www.sheffield.ac.uk/FRAX/tool.jsp?country=4

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Inicio Herramienta de Cálculo Tablas FAQ Referencias

Herramienta de Cálculo

Por favor responda las preguntas siguientes para calcular la probabilidad de fractura a diez años sin DMO o con DMO.

País: España Nombre/ID: Sobre los Factores de riesgo

Cuestionario:

1. Edad (entre 40-90 años) o fecha de nacimiento
   Edad: Fecha de Nacimiento: A M D
2. Sexo Hombre Mujer
3. Peso (kg)
4. Estatura (cm)
5. Fractura Previa No Sí
6. Padres con fractura de cadera No Sí
7. Fumador Activo No Sí
8. Glucocorticoides No Sí
9. Artritis Reumatoide No Sí
10. Osteoporosis Secundaria No Sí
11. Alcohol, 3 o más dosis por día No Sí
12. DMO de Cuello Femoral
    Seleccione DXA

Borrar Calcular

Weig
Pound
Heig
Inches

Prevalence of osteoporotic fracture risk factors and antiosteoporotic treatments in the Valencia region, Spain. The baseline characteristics of the ESOSVAL cohort

J. Sanfélix-Genovés · G. Sanfélix-Gimeno · S. Peiró · I. Hurtado · C. Fluixà · A. Fuertes · J. C. Campos · V. Giner · C. Baixauli

Table 4 Baseline characteristics of the ESOSVAL cohort: densitometric testing, bone mineral density, and antiosteoporotic treatments

	Women				Men			
	50-64	65-74	≥75	Total[a]	50-64	65-74	≥75	Total[a]
Densitometric test in ±24 months from the recruitment date	27.4 (25.8, 29.0)	27.6 (25.3, 30.0)	15.8 (13.3, 18.4)	23.8 (22.6, 25.1)	4.8 (4.1, 5.7)	6.2 (5.1, 7.6)	5.1 (3.9, 6.6)	5.2 (4.6, 5.7)
Bone mineral density (T-score)[b]								
Less than or equal to −2.5	21.0 (18.2, 23.9)	29.8 (25.4, 34.6)	43.9 (35.3, 52.8)	27.5 (24.8, 30.1)	12.6 (7.6, 19.2)	11.2 (5.7, 19.2)	27.0 (16.6, 39.7)	14.9 (18.9, 19.0)
−1 to −2.5	50.1 (46.6, 53.5)	49.7 (44.9, 57.8)	38.6 (30.3, 47.5)	48.0 (45.2, 50.9)	48.9 (40.5, 57.4)	59.2 (48.8, 69.0)	50.8 (37.9, 63.6)	52.4 (46.7, 58.2)
Calcium and/or vitamin D supplements	20.6 (19.2, 22.1)	35.5 (33.0, 37.0)	36.3 (33.0, 39.5)	27.7 (26.4, 29.1)	2.5 (1.9, 3.0)	3.5 (2.6, 4.4)	6.7 (5.3, 8.2)	3.5 (3.0, 4.0)
Antiosteoporotic treatment (any drug)	22.0 (20.5, 23.5)	37.4 (34.9, 39.9)	34.4 (31.1, 37.6)	28.2 (26.8, 29.5)	1.7 (1.3, 2.2)	2.4 (1.7, 3.2)	4.0 (2.9, 5.1)	2.3 (1.9, 2.7)

[a] Total weighted to represent the distribution of the population by age in the Valencia region

[b] Figures for patients with one densitometric test

Table 3 Baseline characteristics of the ESOSVAL cohort: risk probability of osteoporotic fracture (FRAX tool)

	Women				Men			
	50–64	65–74	≥75	Total[a]	50–64	65–74	≥75	Total[a]
10-year risk of major fracture								
<10 %	99.4 (99.0, 99.6)	87.0 (85.1, 88,7)	30.1 (26.9, 33.4)	75.7 (74.1, 77.3)	99.9 (99.8, 100.0)	99.6 (99.1, 99.8)	92.5 (90.9, 94.0)	98.4 (98.0, 98.7)
10–19 %	0.6 (0.4, 1.0)	11.0 (9.4, 12.8)	52.7 (49.2, 56.2)	17.9 (16.4, 19.3)	0.1 (0.0, 0.2)	0.3 (0.1, 0.8)	7.3 (5.8, 8.9)	1.5 (1.2, 1.9)
≥20 %	0.0 (0.0, 0.2)	2.0 (1.4, 2.9)	17.2 (14.7, 20.0)	6.4 (5.3, 7.5)	0.0 (0.0, 0.1)	0.1 (0.0, 0.4)	0.2 (0.0, 0.6)	0.1 (0.0, 0.1)
10-year risk of hip fracture								
<3 %	99.3 (98.9, 99.6)	81.8 (79.8, 83.9)	15.2 (12.8, 17.9)	71.2 (69.6, 72.9)	99.9 (99.7, 100.0)	97.5 (96.6, 98.2)	58.5 (55.5, 61.4)	90.8 (90.0, 91.6)
≥3 %	0.7 (0.4, 1.1)	18.2 (16.2, 20.3)	84.8 (82.1, 87.2)	28.8 (27.1, 30.4)	0.1 (0.0, 0.3)	2.5 (1.8, 3.4)	41.5 (38.6, 44.5)	9.2 (8.4, 10.0)

Missing data: FRAX (388)

[a] Total weighted to represent the distribution of the population by age in the Valencia region

Sanfelix-Genoves, et al. Ost Int, 2012.

Official Positions for FRAX® Clinical Regarding Falls and Frailty: Can Falls and Frailty be Used in FRAX®?

From Joint Official Positions Development Conference of the International Society for Clinical Densitometry and International Osteoporosis Foundation on FRAX®

Tahir Masud,*[*,1] Neil Binkley,[2] Steven Boonen,[3] and Marian T. Hannan[4] on behalf of the FRAX® Position Development Conference Members[a]

[1]*Nottingham University Hospitals and University of Nottingham, UK and University of Southern Denmark, Denmark;* [2]*University of Wisconsin School of Medicine and Public Health, Madison, WI, USA;* [3]*Leuven University Division of Gerontology and Geriatrics, Leuven, Belgium; and* [4]*Institute for Aging Research, Hebrew Senior Life, and Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA*

Abstract

Risk factors for fracture can be purely skeletal, e.g., bone mass, microarchitecture or geometry, or a combination of bone and falls risk related factors such as age and functional status. The remit of this Task Force was to review the evidence and consider if falls should be incorporated into the FRAX® model or, alternatively, to provide guidance to assist clinicians in clinical decision-making for patients with a falls history. It is clear that falls are a risk factor for fracture. Fracture probability may be underestimated by FRAX® in individuals with a history of frequent falls. The substantial evidence that various interventions are effective in reducing falls risk was reviewed. Targeting falls risk reduction strategies towards frail older people at high risk for indoor falls is appropriate. This Task Force believes that further fracture reduction requires measures to reduce falls risk in addition to bone directed therapy. Clinicians should recognize that patients with frequent falls are at higher fracture risk than currently estimated by FRAX® and include this in decision-making. However, quantitative adjustment of the FRAX® estimated risk based on falls history is not currently possible. In the long term, incorporation of falls as a risk factor in the FRAX® model would be ideal.

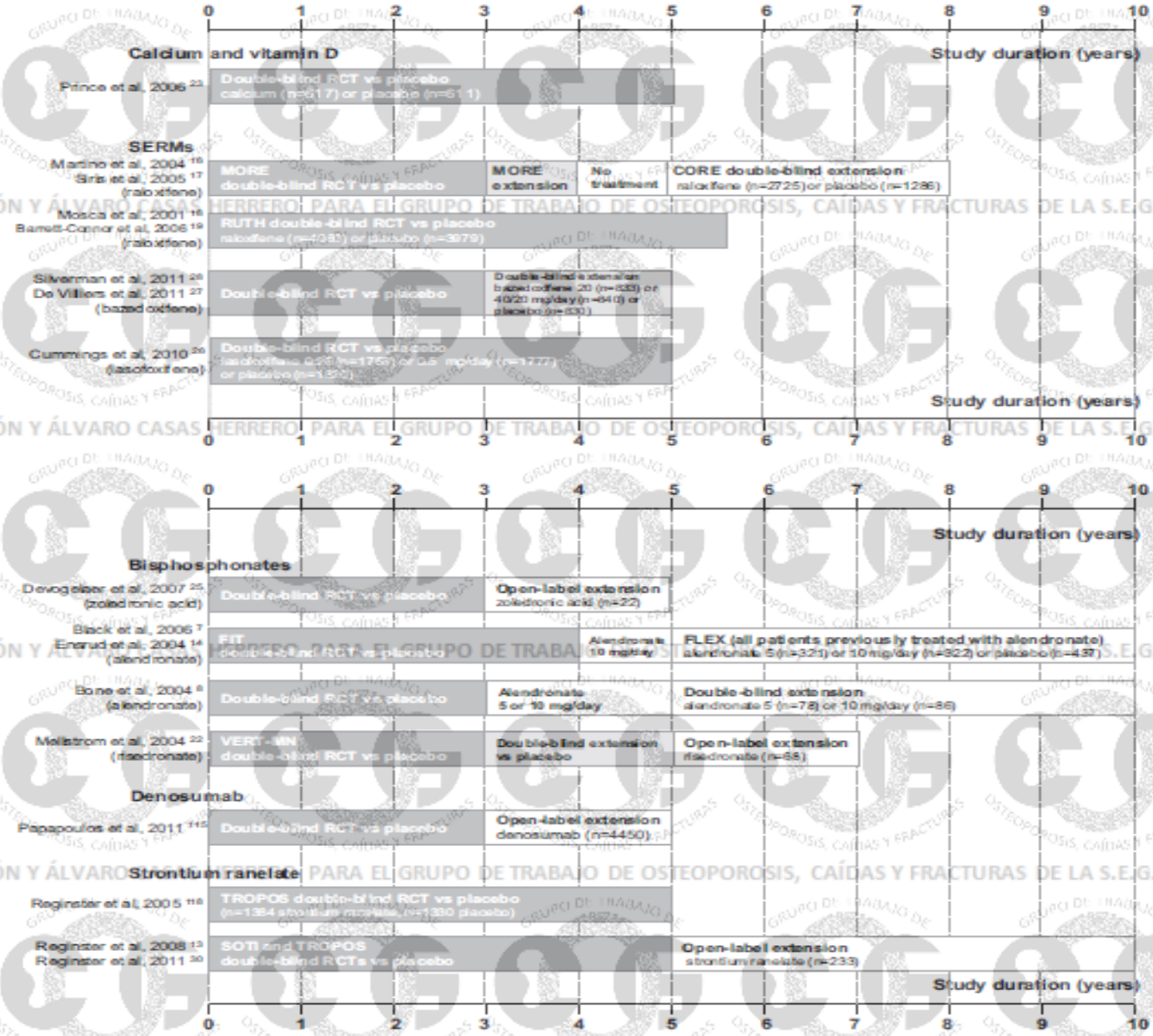


Figure 1. Summary of published study designs for the long-term trials with osteoporosis treatments with fracture-related end points, including the number patients completing the longest treatment period[7,8,13–30]. The pivotal trials are shown in dark gray and the extension phases in white. CORE, Continuing Outcomes Relevant to Evista; FIT, Fracture Intervention Trial; FLEX, Fracture Intervention Trial Long-term Extension; MORE, Multiple Outcomes of Raloxifene Evaluation; RCT, randomized controlled trial; PEARL, Postmenopausal Evaluation and Risk-Reduction with Lasofoxifene; RUTH, Raloxifene Use for the Heart; SOTI, Spinal Osteoporosis Therapeutic Intervention; TROPOS, Treatment of Peripheral Osteoporosis; VERT-MN, Vertebral Efficacy with Risedronate Therapy–Multinational.

Introducción IV: ¿Cuándo cambiar?

- Efectos secundarios
- Complicaciones
- Fracaso terapéutico
- Falta de adherencia

Características de los tratamientos preventivos

Singer AJ, Boonen S. Curr Med Res Opin 2008;24(6):1789-96.

ARSENAL TERAPÉUTICO ACTUAL

Actualmente existe una gran variedad de tratamientos para la osteoporosis aprobados en España[1-15]

TRATAMIENTOS PARA LA OSTEOPOROSIS APROBADOS ACTUALMENTE EN ESPAÑA[1-15]		
Grupo terapéutico	**Principio activo**	**Forma y frecuencia de administración**
Bifosfonatos	Alendronato	Oral, diaria o semanal[1,2]
	Risedronato	Oral, diaria, semanal o mensual[3-5]
	Ibandronato	Oral, mensual[6] Inyección i.v., cada 3 meses[7]
	Zoledronato	Perfusión i.v., anual[8]
Modulador selectivo de los receptores de estrógenos (SERMs)	Raloxifeno	Oral, diaria[9]
	Bazedoxifeno	Oral, diaria[10]
Hormona paratiroidea (PTH)	Teriparatida	Inyección subcutánea, diaria[11,12]
	PTH 1-84	Inyección subcutánea, diaria[11,12]
Calcitonina	Calcitonina	Espray nasal, diaria[13]
Otros	Ranelato de estroncio	Oral, diaria[14]
	Denosumab	Subcutánea, semestral 15

1. Ficha técnica de Fosamax® (10 mg), 2009. **2.** Ficha técnica de Fosamax® (70 mg), 2009. **3.** Ficha técnica de Actonel® (5 mg), 2009. **4.** Ficha técnica de Actonel® (75 mg), 2009. **5.** Ficha técnica de Actonel® (35 mg), 2009. **6.** Ficha técnica de Bonviva® (150 mg), 2009. **7.** Ficha técnica de Bonviva® (3 mg/3 ml), 2009. **8.** Ficha técnica de Aclasta® (5 mg/100 ml), 2009. **9.** Ficha técnica de Evista® (60 mg), 2008. **10.** Ficha técnica de Conbriza® (20 mg), 2009. **11.** Ficha técnica de Forsteo® (20 µg/80 µl), 2009. **12.** Ficha técnica de Preotact® (100 µg), 2006. **13.** Ficha técnica de Miacalcic® (200 UI), 2008. **14.** Ficha técnica de Protelos® (2 g), 2009. 15. Ficha tecnica Prolia* (60mg),2011.

TRATAMIENTOS PARA LA OSTEOPOROSIS APROBADOS ACTUALMENTE EN ESPAÑA

Grupo terapéutico	Principio activo	Fx vertebral	Fx no vertebral	Fx de cadera
Bifosfonatos	Alendronato	X	X	X
	Risedronato	X	X	X
	Ibandronato	X		
	Zoledronato	X	X	X
Modulador selectivo de los receptores de estrógenos (SERMs)	Raloxifeno	X		
	Bazedoxifeno	X		
Hormona paratiroidea (PTH)	Teriparatida	X	X	
	PTH 1-84	X	X	
Calcitonina	Calcitonina	X		
Otros	Ranelato de estroncio	X	X	X
	Denosumab	X	X	X

JOURNAL OF BONE AND MINERAL RESEARCH
Volume 20, Number 6, 2005
Published online on January 18, 2005; doi: 10.1359/JBMR.050104

Effect of Alendronate on the Age-Specific Incidence of Symptomatic Osteoporotic Fractures

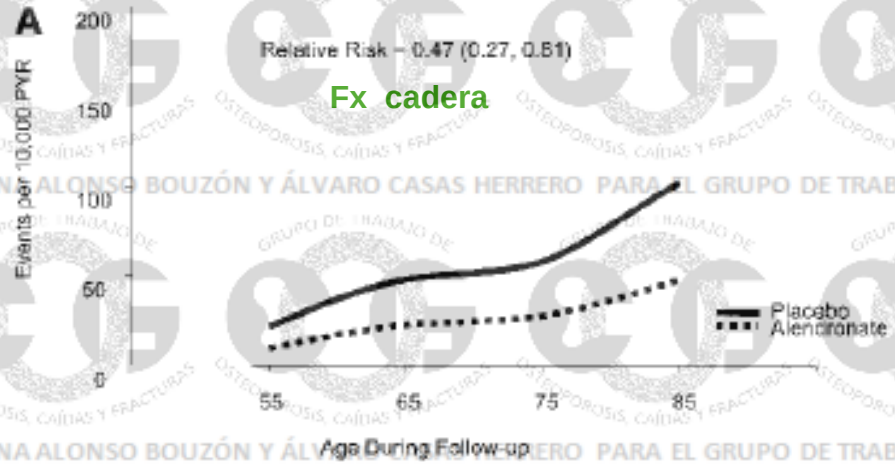
Marc C Hochberg,[1] Desmond E Thompson,[2] Dennis M Black,[3] Sara A Quandt,[4] Jane Cauley,[5] Piet Geusens,[6] Philip D Ross,[2] and Dan Baran[2] for the FIT Research Group

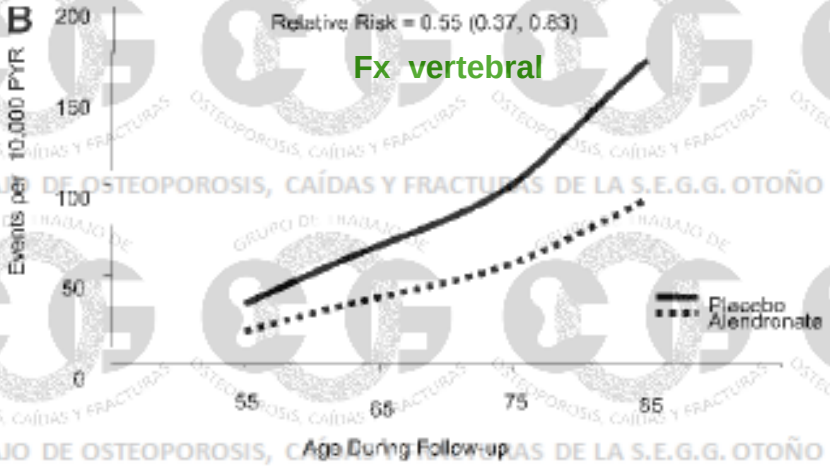
3658 MUJERES.

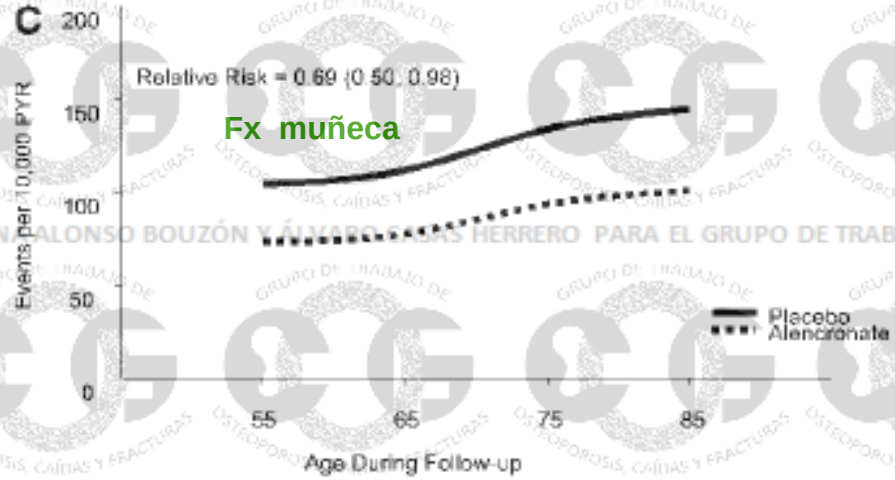
55-80 AÑOS

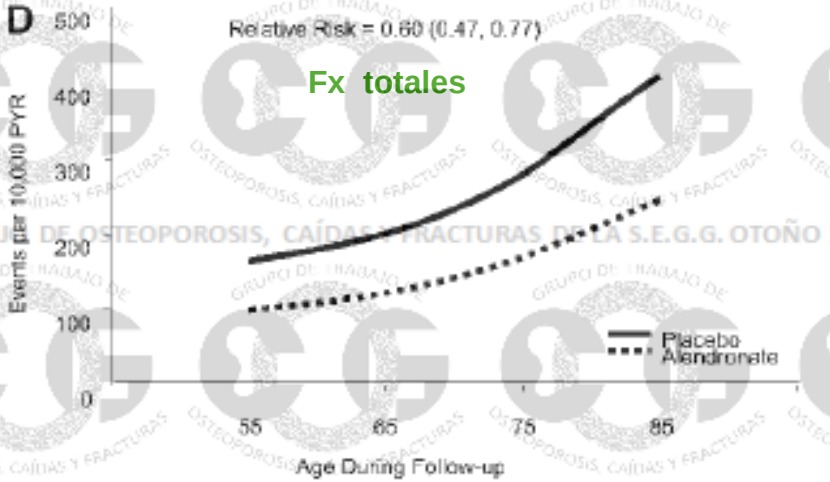
Criterios DMO ó fx vert

Seguim 2,5 años









EFFECT OF RISEDRONATE ON THE RISK OF HIP FRACTURE IN ELDERLY WOMEN

MICHAEL R. MCCLUNG, M.D., PIET GEUSENS, M.D., PAUL D. MILLER, M.D., HARTMUT ZIPPEL, M.D., WILLIAM G. BENSEN, M.D., CHRISTIAN ROUX, M.D., PH.D., SILVANO ADAMI, M.D., IGNAC FOGELMAN, M.D., TERRENCE DIAMOND, M.D., RICHARD EASTELL, M.D., PIERRE J. MEUNIER, M.D., AND JEAN-YVES REGINSTER, M.D., PH.D., FOR THE HIP INTERVENTION PROGRAM STUDY GROUP*

2,5mg Risedronato

3 años

TABLE 2. INCIDENCE OF HIP FRACTURE IN SUBGROUPS OF THE WOMEN, ACCORDING TO TREATMENT WITH RISEDRONATE OR PLACEBO.*

GROUP	RISEDRONATE			PLACEBO			RELATIVE RISK (95% CI)	P VALUE†
	TOTAL NO.	NO. WITH HIP FRACTURE	INCIDENCE %	TOTAL NO.	NO. WITH HIP FRACTURE	INCIDENCE %		
Overall	6197	137	2.8	3134	95	3.9	0.7 (0.6–0.9)	0.02
Women 70–79 yr of age with osteoporosis	3624	55	1.9	1821	46	3.2	0.6 (0.4–0.9)	0.009
Presence of vertebral fracture at base line‡	1128	22	2.3	575	25	5.7	0.4 (0.2–0.8)	0.003
Absence of vertebral fracture at base line	1773	14	1.0	875	12	1.6	0.6 (0.3–1.2)	0.14
Women ≥80 yr of age with ≥1 clinical risk factors for hip fracture	2573	82	4.2	1313	49	5.1	0.8 (0.6–1.2)	0.35

*Women 70 to 79 years old were enrolled if they had a low bone mineral density at the femoral neck (T score, lower than −4 or lower than −3 with at least one nonskeletal risk factor for hip fracture). Women 80 years of age or older were enrolled if they had at least one nonskeletal risk factor or a low bone mineral density at the femoral neck (T score, lower than −4 or lower than −3 with a hip-axis length ≥11.1 cm). The incidence is the proportion of the total group at risk at a given time with a hip fracture, according to the Kaplan–Meier survival estimates for the three-year period of the study.

†P values are for the comparison between risedronate and placebo by the log-rank test (two-sided).

‡The presence or absence of a vertebral fracture at base line was known for 4351 (80 percent) of the women 70 to 79 years old.

Short report

J Neurol Neurosurg Psychiatry 2011;**82**:1390–1393. doi:10.1136/jnnp.2011.244574

Once-weekly risedronate for prevention of hip fracture in women with Parkinson's disease: a randomised controlled trial

Yoshihiro Sato,[1] Jun Iwamoto,[2] Yoshiaki Honda[1]

Fractura de cadera: RR 0,2 (0,06-0,66)
+3,4% grupo risendronato vs -3,2% grupo placebo
2 años. Mayores de 70.

Risedronate and ergocalciferol prevent hip fracture in elderly men with Parkinson disease

Yoshihiro Sato, MD; Yoshiaki Honda, MD; and Jun Iwamoto, MD

Fractura de cadera: RR 0,33 (0,09-1,2)
+2,2% grupo risendronato vs -2,9% grupo placebo
2 años. Mayores de 70

Arch Intern Med; 2005 Aug 8-22;165(15):1743-8

Risedronate Sodium Therapy for Prevention of Hip Fracture in Men 65 Years or Older After Stroke

Yoshihiro Sato, MD; Jun Iwamoto, MD; Tomohiro Kanoko, PhD; Kei Satoh, MD

Fractura de cadera: RR 0,19 (0,04-0,89). NNT 16
+2,5% grupo risendronato vs -3,5% grupo placebo
Mayores de 65 años. 18 meses

Neurology; 2005 Mar 8;64(5):811-6.

Risedronate **therapy for prevention of hip fracture after stroke in elderly women.**

Sato Y, Iwamoto J, Kanoto T, Satoh K.

Fractura de cadera: OR 7 en grupo placebo vs Rs p=0.0360
+1,5% grupo risendronato vs -4,9% grupo placebo
Mayores de 65 años. Doce meses.

Arch Intern Med. 2005;165:1737-1742

The Prevention of Hip Fracture With Risedronate and Ergocalciferol Plus Calcium Supplementation in Elderly Women With Alzheimer Disease

A Randomized Controlled Trial

Yoshihiro Sato, MD; Tomohiro Kanoko, PhD; Kei Satoh, MD; Jun Iwamoto, MD

Table 1. Demographic and Baseline Clinical Characteristics of the Female Patients With Alzheimer Disease at Study Entry*

Characteristic	Control Group (n = 250)	Risedronate Group (n = 250)	*P* Value†
Age, y	77.7 ± 5.1	77.7 ± 5.3	.99
Duration of illness, y	4.4 ± 2.0	4.4 ± 1.9	.98
Mini-Mental State Examination score	16.4 ± 4.5	16.5 ± 5.2	.80
Interval since menopause, y	25.0 ± 3.6	25.0 ± 3.7	.95
Barthel index‡	85.8 ± 9.0	85.7 ± 8.6	.88
Body mass index, kg/m^2	19.6 ± 2.3	19.7 ± 2.0	.61
Faller§	90 (36)	88 (35)	.90‖
Sunlight exposure per wk			
>15 min	14 (6)	13 (5)	.93‖
≤15 min	26 (10)	24 (10)	
None	210 (84)	213 (85)	
Dietary intake of calcium, mg/d	864 ± 167	862 ± 161	.85
Dietary intake of vitamin D, IU/d	80 ± 19	80 ± 18	.96
Bone mineral density,¶ mm Al	1.90 ± 0.29	1.90 ± 0.32	.96

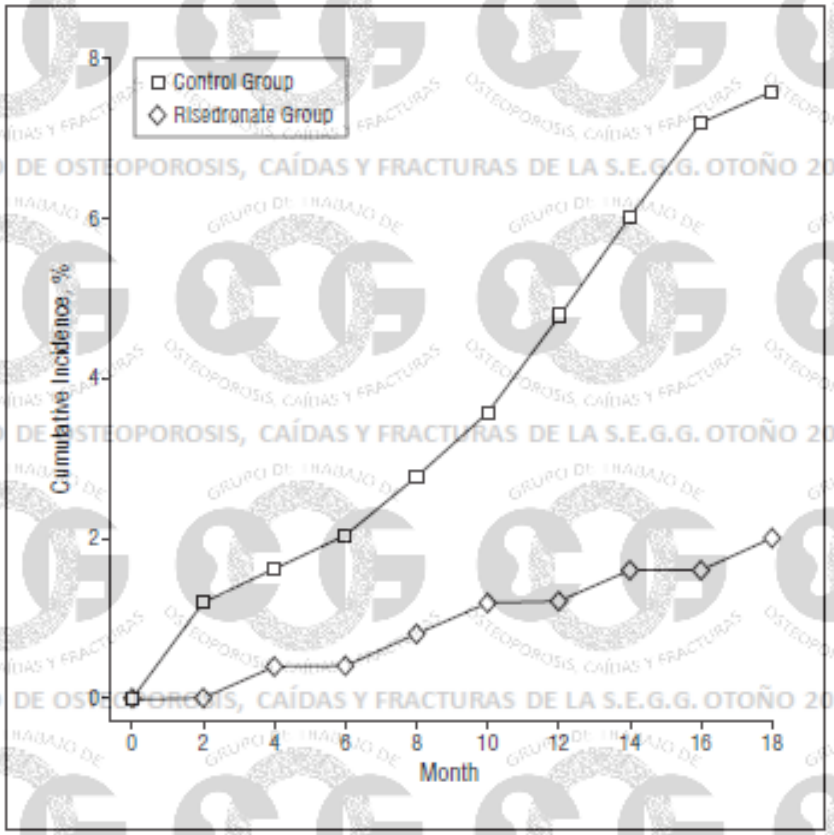


Figure 2. Cumulative incidence of hip fractures in the risedronate sodium and ergocalciferol with calcium supplementation (risedronate) group and the placebo and ergocalciferol with calcium supplementation (control) group. During 18 months, 19 subjects in the control group and 5 in the risedronate group had a hip fracture (log-rank, $P<.001$).

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 NOVEMBER 1, 2007 VOL. 357 NO. 18

Zoledronic Acid and Clinical Fractures and Mortality after Hip Fracture

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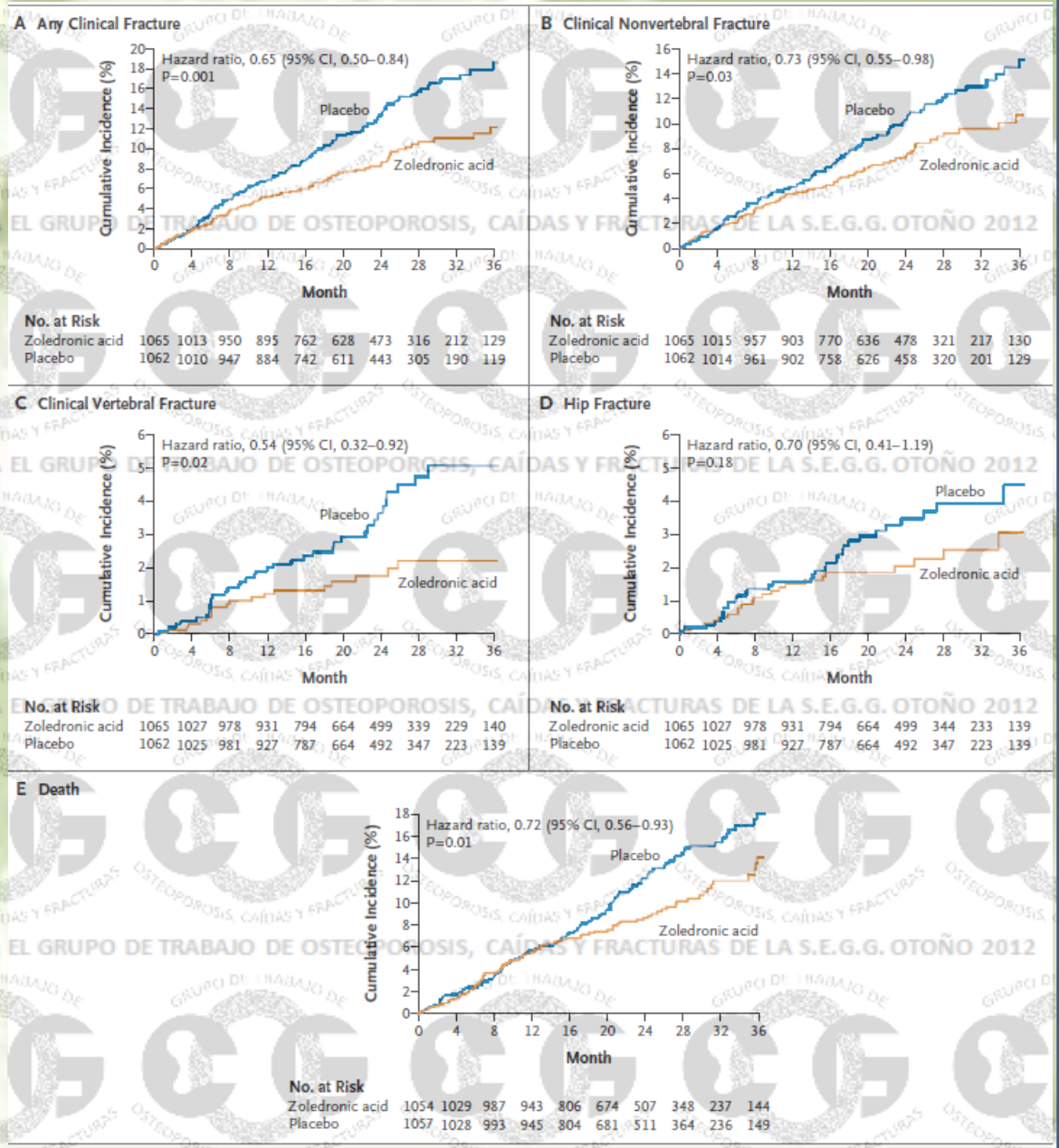


Figure 2. Time to Primary or Secondary End Point.

Efficacy and Safety of a Once-Yearly Intravenous Zoledronic Acid 5 mg for Fracture Prevention in Elderly Postmenopausal Women with Osteoporosis Aged 75 and Older

Steven Boonen, MD, PhD, Dennis M. Black, PhD,† Cathleen S. Colón-Emeric, MD, MHSc,‡§ Richard Eastell, MD,‖ Jay S. Magaziner, PhD,# Erik Fink Eriksen, MD, DMSc,** Peter Mesenbrink, PhD,†† Patrick Haentjens, MD, PhD,‡‡ and Kenneth W. Lyles, MD‡§§§*

Criterios densitométricos de OP

Fx previa

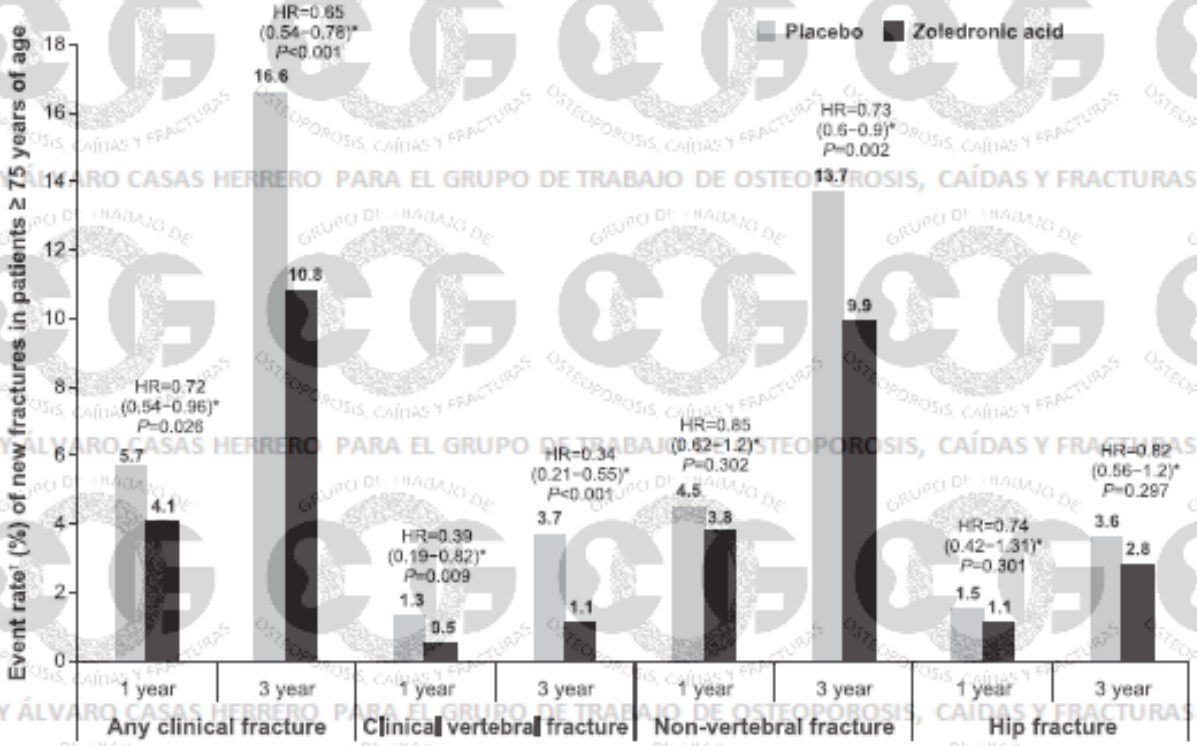


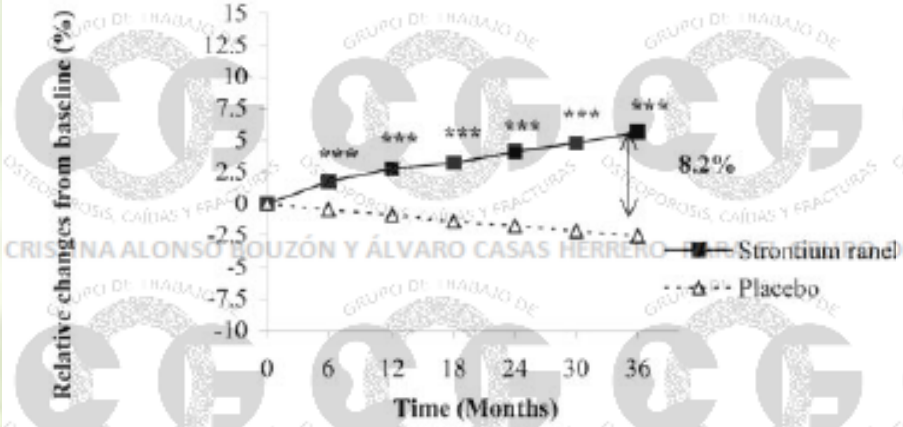
Figure 1. Event rate of new fractures in patients receiving zoledronic acid (ZOL) 5 mg once yearly and those receiving placebo at 1 and 3 years. *Hazard ratio (HR) (95% confidence interval) of ZOL versus placebo computed from the Cox proportional hazards regression model stratified according to study with treatment as a factor within the subgroup. †Event rate calculated from Kaplan-Meier estimates.

JAGS 58:292–299, 2010

J Clin Endocrinol Metab, May 2005, 90(5):2816–2822

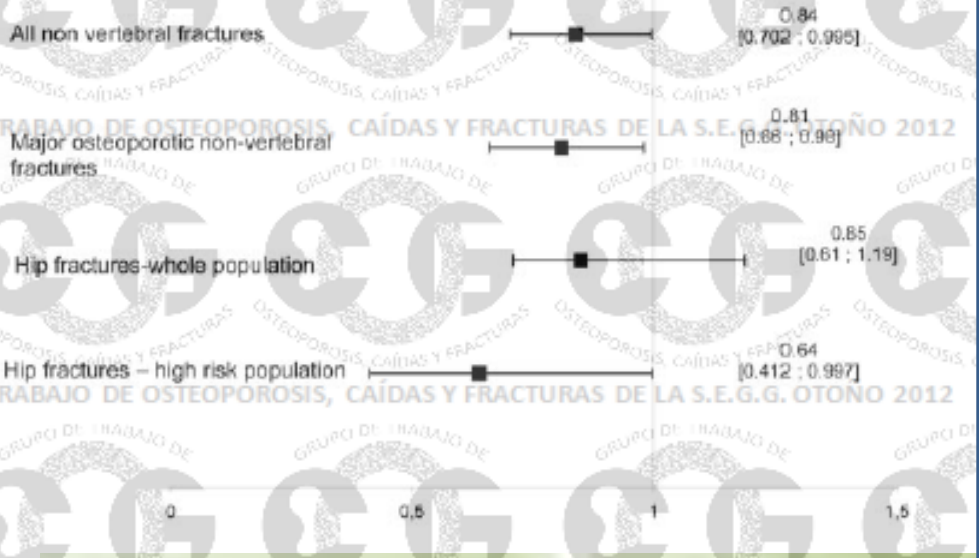
Strontium Ranelate Reduces the Risk of Nonvertebral Fractures in Postmenopausal Women with Osteoporosis: Treatment of Peripheral Osteoporosis (TROPOS) Study

J. Y. Reginster, E. Seeman, M. C. De Vernejoul, S. Adami, J. Compston, C. Phenekos, J. P. Devogelaer, M. Diaz Curiel, A. Sawicki, S. Goemaere, O. H. Sorensen, D. Felsenberg, and P. J. Meunier



Number of evaluated patients	M0	M12	M24	M36
Strontium ranelate	2243	1851	1596	1393
Placebo	2238	1908	1630	1395

FIG. 5. Femoral neck BMD: relative mean differences betwe changes from baseline (%). Student's test for independent samples < 0.01 (hierarchical stepdown procedure).



JOURNAL OF BONE AND MINERAL RESEARCH
Volume 21, Number 7, 2006
Published online on May 8, 2006; doi: 10.1359/JBMR.060404

Strontium Ranelate Reduces the Risk of Vertebral and Nonvertebral Fractures in Women Eighty Years of Age and Older

Ego Seeman,[1] Bruno Vellas,[2] Claude Benhamou,[3] Jean Pierre Aquino,[4] Jutta Semler,[5] Jean Marc Kaufman,[6] Krzysztof Hoszowski,[7] Alfredo Roces Varela,[8] Carmelo Fiore,[9] Kim Brixen,[10] Jean Yves Reginster,[11] and Steven Boonen[12]

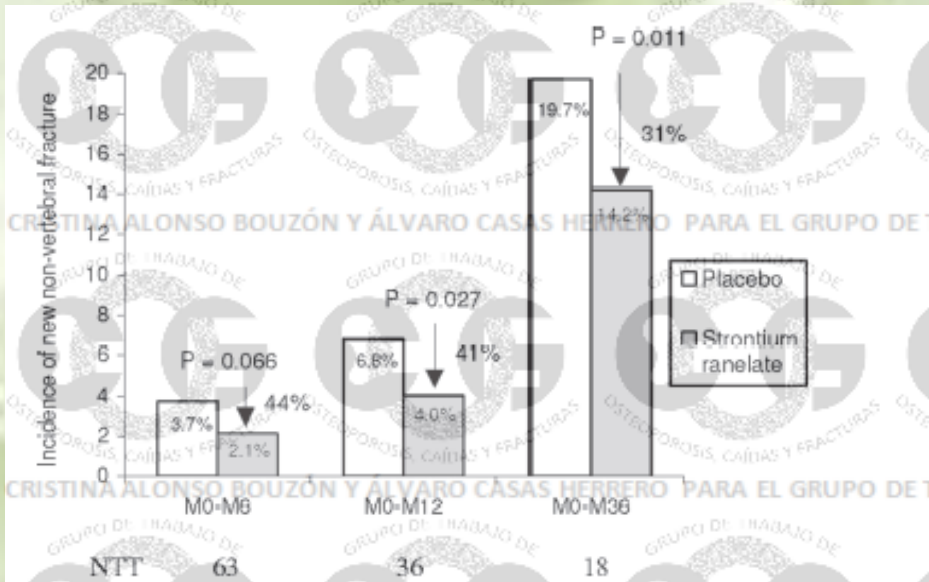


FIG. 3. Reduction of nonvertebral fracture risk with strontium ranelate in the elderly over 6 months and 1 and 3 years in the ITT pooled population.

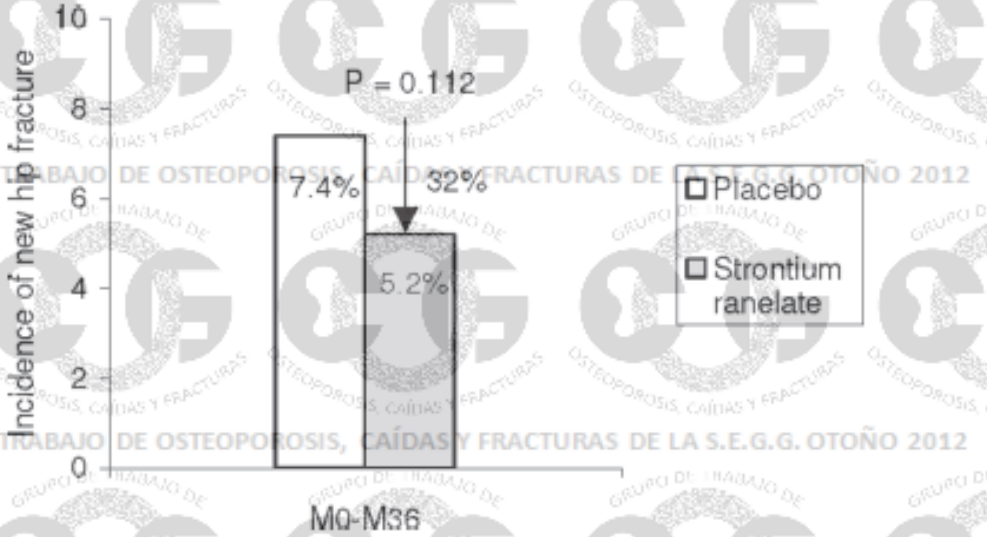
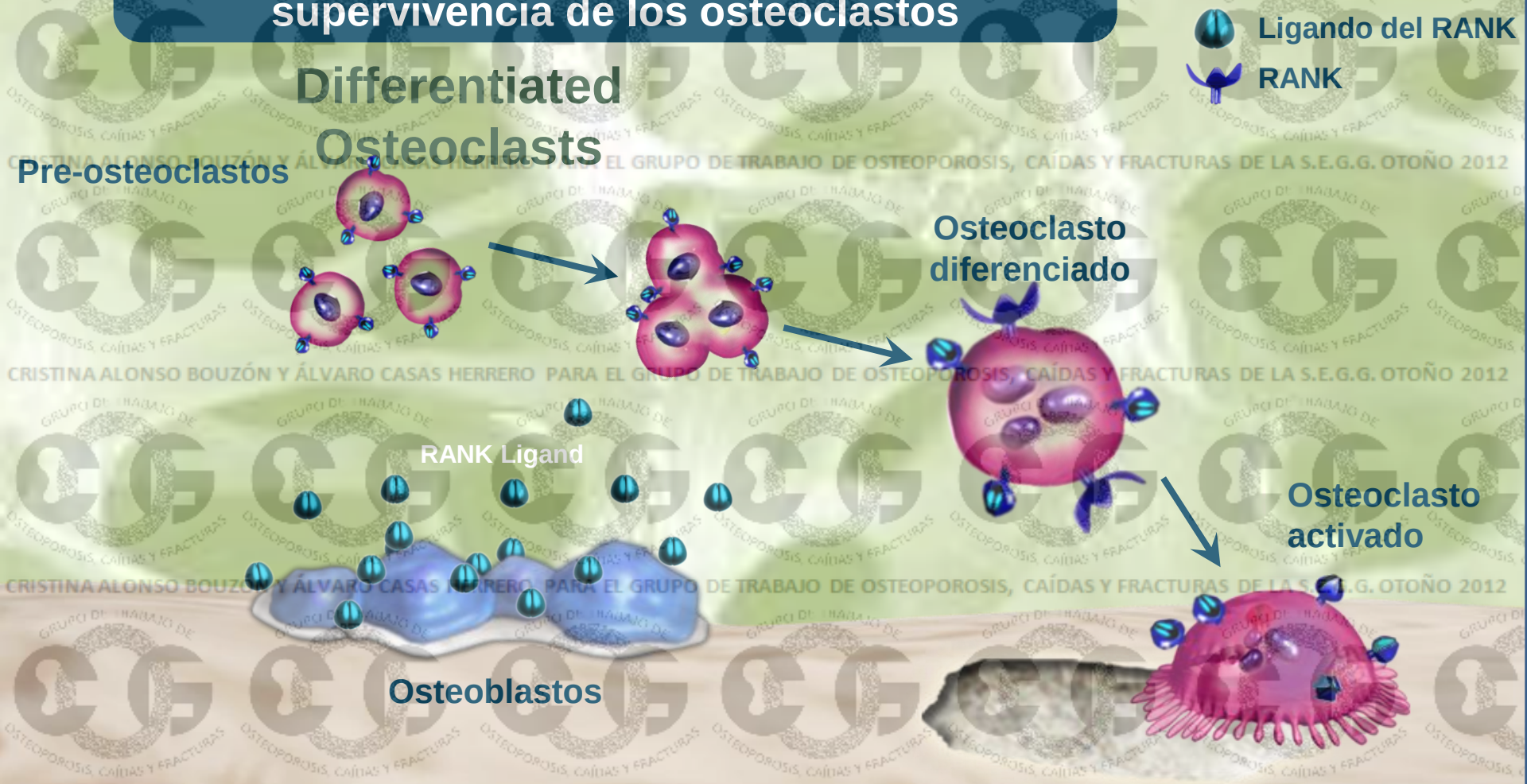


FIG. 4. Reduction in hip fracture risk with strontium ranelate in the elderly over 3 years in the ITT pooled population.

La vía RANKL/RANK/OPG participa en la regulación de la remodelado óseo[1,2]

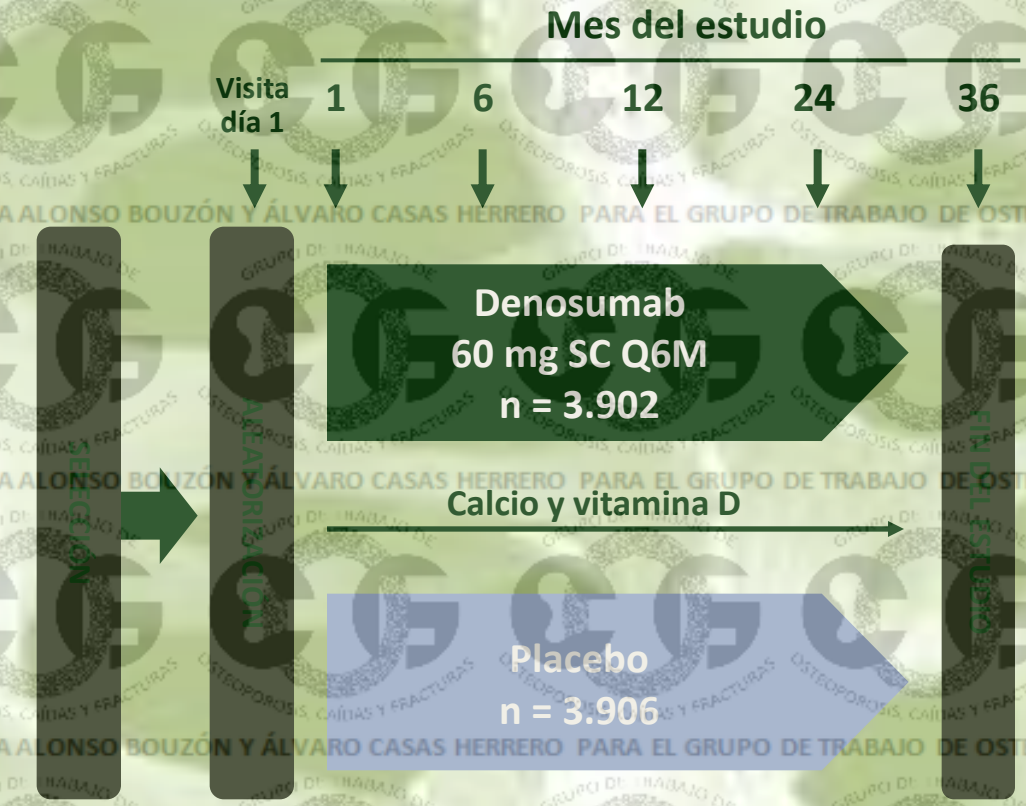
El ligando del RANK es un mediador fundamental para la formación, función y supervivencia de los osteoclastos



1. Boyle WJ, *et al*. *Nature* 2003;423:337–342. 2. Kostenuik PJ, *et al*. *Curr Pharm Des* 2001;7:613–635.

Diseño del estudio

Fase III: estudio FREEDOM



Población del estudio

- 7.808 mujeres posmenopáusicas
- Puntuación T < –2,5 en la columna lumbar o la cadera total y no < –4,0 en cualquiera de las localizaciones

Objetivo de este análisis

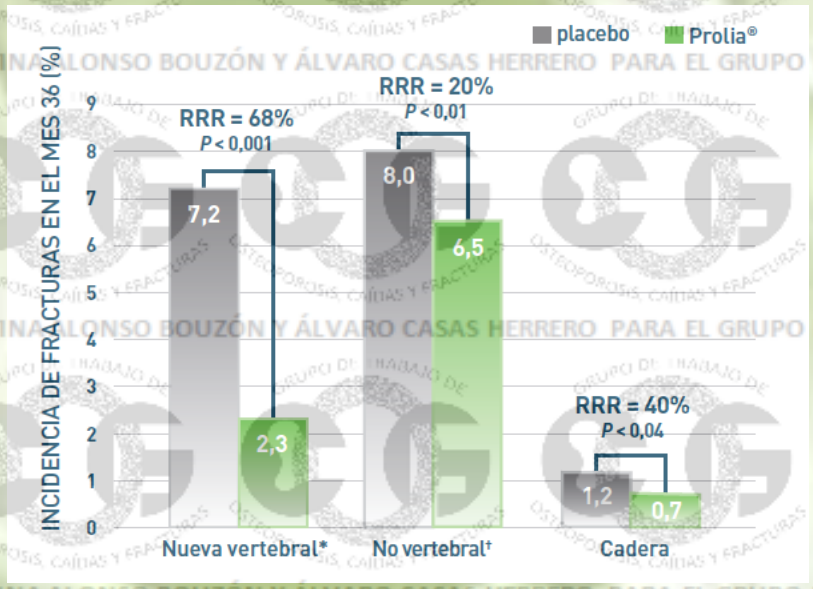
- Evaluar el efecto del tratamiento con denosumab sobre el riesgo de fractura en subgrupos de pacientes con alto riesgo incluidos en el estudio FREEDOM
  - Nuevas fracturas vertebrales
  - Fracturas no vertebrales
  - Fracturas de cadera

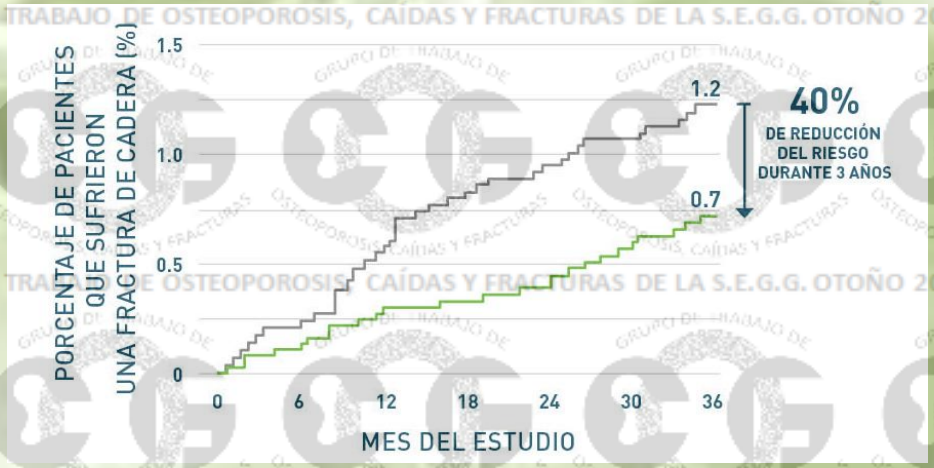
- **Estudio internacional controlado con placebo**

SC = vía subcutánea; Q6M = una vez cada 6 meses

Cummings SR, et al. *N Engl J Med*. 2009;361:756-765.

Boonen S, et al. *J Bone Miner Res*. 2009;24(Suppl 1). http://www.asbmr.org. Accessed September 13, 2009. Abstract A09001311 and oral presentation.





1. Cummings SR *et al*. *N Engl J Med* 2009;361:756–765.

Principio Activo	POBLACIÓN	EFICACIA	E.2/CONTIND.
Alendronato	Mujeres hasta 80 años: criterios DMO y/o fx vertebral (Post hoc FIT)	Fx cadera, Fx vertebrales, Fx muñeca y todas.	-E. digestivos: tolerancia. -Fx patológicas a largo plazo -Insuficiencia renal -- Falta de adherencia (e.zoledronico)
Risendronato	Hombres/Mujeres 70-79: criterios DMO y/o fx vertebral E. de Parkinson E. Cerebrovascular E. de Alzheimer	Fx de cadera	
Ac. Zoledrónico	-Mujeres mayores de 75ª: criterios clásicos OP (Post hoc Horizon) -Postqco fx cadera (90d) Analisis principal	Fx vertebrales y no verteb. Mort. Fx: cualq, vertebral y no verteb.	
Ranelato de estroncio	Mujeres mayores de 80: crit DMO+fx vertebral (Post hocTropos/Soti)	Fx vertebral, no vertebral y cadera (>79 y DMO <3).	ET: TVP o TEP Reacciones dermatológicas
Denosumab	Mujeres ¿mayores de 75 años?: criterios DMO (Post hoc Freedom)	Fx vertebral, no vertebral y cadera.	Infecciones

REVIEW ARTICLE

Antifracture Efficacy of Currently Available Therapies for Postmenopausal Osteoporosis

Jean-Yves Reginster

Bone and Cartilage Metabolism Research Unit, CHU Centre – Ville, Liege, Belgium

Table IV. Outcome measures for hip fracture over 3 years with currently available osteoporosis treatments calculated from the results of randomized, double-blind, pivotal phase III trials vs placebo

Treatment[a]	Study	Fracture incidence (%)		RRR (%)	ARR (%)	NNT
		placebo	treatment			
Alendronate	FIT 1[36]	2.2	1.1	51	1.1	91
Risedronate	HIP[45]	3.9	2.8	30	1.1	91
Zoledronic acid	HORIZON[40]	2.5	1.4	41	1.1	91
Denosumab	FREEDOM[26]	1.2	0.7	40	0.3	334
Lasofoxifene[b]	PEARL[42]	1.2	0.9	NS		
Strontium ranelate	TROPOS[46]	6.4	4.3	36	2.1	48

a No data for ibandronate, raloxifene, bazedoxifene or teriparatide.

b Data over 5 years.

ARR = absolute risk reduction; **NNT** = number needed to treat (to prevent one event over 3 years); **NS** = not statistically significant; **RRR** = relative risk reduction.

Fármacos en desarrollo

- Fármacos inhibidores de la resorción
  - Inhibidores de la catepsina K: Ondacatib, Relacatib, MK-0674
  - Inhibición de las integrinas
  - Inhibición de la Scr-quinasa
  - Inhibición de los mecanismos de acidificación

Fármacos anabólicos

-Modulación de la via de señalización Wnt: anticuerpos anti-esclarostina (AMG-785), Inhibidor de las sFRP

-Inhibición de las activinas (ACE- 011)

HOT TOPICS 2011-2012

AMGEN

Septiembre 2012

Comunicación dirigida a Profesionales Sanitarios

Se han recibido notificaciones de hipocalcemia sintomática, incluyendo casos con desenlace mortal, en pacientes en tratamiento con XGEVA® (denosumab)

BMJ

RESEARCH

Calcium supplements with or without vitamin D and risk of cardiovascular events: reanalysis of the Women's Health Initiative limited access dataset and meta-analysis

Mark J Bolland, senior research fellow,[1] Andrew Grey, associate professor,[1] Alison Avenell, clinical research fellow,[2] Greg D Gamble, research fellow,[1] Ian R Reid, professor of medicine and endocrinology[1]

[1]Department of Medicine, University of Auckland, Private Bag

ABSTRACT

Objectives To investigate the effects of personal calcium

infarction (relative risk 1.24 (1.07 to 1.45), P=0.004) and the composite of myocardial infarction or stroke (1.15

Cite this as: *BMJ* 2011;342:d2040
doi:10.1136/bmj.d2040

Context Osteoporosis is associated with significant morbidity and mortality. Oral bisphosphonates have become a mainstay of treatment, but concerns have emerged that long-term use of these drugs may suppress bone remodeling, leading to unusual fractures.

Objective To determine whether prolonged bisphosphonate therapy is associated with an increased risk of subtrochanteric or femoral shaft fracture.

Design, Setting, and Patients A population-based, nested case-control study to explore the association between bisphosphonate use and fractures in a cohort of women aged 68 years or older from Ontario, Canada, who initiated therapy with an oral bisphosphonate between April 1, 2002, and March 31, 2008. Cases were those hospitalized with a subtrochanteric or femoral shaft fracture and were matched to up to 5 controls with no such fracture. Study participants were followed up until March 31, 2009.

Main Outcome Measures The primary analysis examined the association between hospitalization for a subtrochanteric or femoral shaft fracture and duration of bisphosphonate exposure. To test the specificity of the findings, the association between bisphosphonate use and fractures of the femoral neck or intertrochanteric region, which are characteristic of osteoporotic fractures, was also examined.

Results We identified 716 women who sustained a subtrochanteric or femoral shaft fracture following initiation of bisphosphonate therapy and 9723 women who sustained a typical osteoporotic fracture of the intertrochanteric region or femoral neck. Compared with transient bisphosphonate use, treatment for 5 years or longer was associated with an increased risk of subtrochanteric or femoral shaft fracture (adjusted odds ratio, 2.74; 95% confidence interval, 1.25-6.02). A reduced risk of typical osteoporotic fractures occurred among women with more than 5 years of bisphosphonate therapy (adjusted odds ratio, 0.76; 95% confidence interval, 0.63-0.93). Among 52 595 women with at least 5 years of bisphosphonate therapy, a subtrochanteric or femoral shaft fracture occurred in 71 (0.13%) during the subsequent year and 117 (0.22%) within 2 years.

Conclusion Among older women, treatment with a bisphosphonate for more than 5 years was associated with an increased risk of subtrochanteric or femoral shaft fractures; however, the absolute risk of these fractures is low.

JAMA. 2011;305(8):783-789 www.jama.com

CRISTINA ALONSO BOUZÓN Y ÁLVARO CASAS HERRERO PARA EL GRUPO DE TRABAJO DE OSTEOPOROSIS, CAÍDAS Y FRACTURAS DE LA S.E.G.G. OTOÑO 2012

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Fracture Risk and Zoledronic Acid Therapy in Men with Osteoporosis

Steven Boonen, M.D., Ph.D., Jean-Yves Reginster, M.D., Ph.D., Jean-Marc Kaufman, M.D., Ph.D., Kurt Lippuner, M.D., Jose Zanchetta, M.D., Bente Langdahl, Ph.D., D.M.Sc., Rene Rizzoli, M.D., Stanley Lipschitz, M.B., B.Ch., Hans Peter Dimai, M.D., Richard Witvrouw, M.D., Erik Eriksen, M.D., D.M.Sc., Kim Brixen, M.D., Ph.D., Luis Russo, M.D., Ph.D., Frank Claessens, Ph.D., Philemon Papanastasiou, Ph.D., Oscar Antunez, M.D., Guoqin Su, Ph.D., Christina Bucci-Rechtweg, M.D., Josef Hruska, M.D., Elodie Incera, M.S., Dirk Vanderschueren, M.D., Ph.D., and Eric Orwoll, M.D.

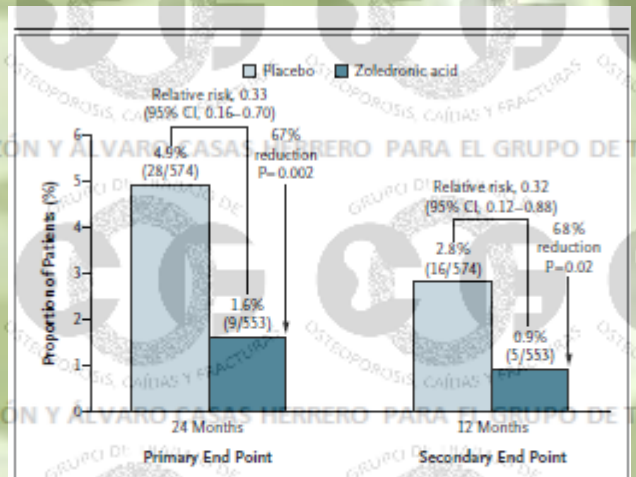


Figure 2. Relative Risks of One or More New Morphometric Vertebral Fractures in the Modified Intention-to-Treat Population.

The relative risk was calculated on the basis of a two-by-two table, and the normal approximation was used to calculate the 95% confidence interval (CI). A relative risk of less than 1 implies that the likelihood of the event is lower with zoledronic acid than with placebo.

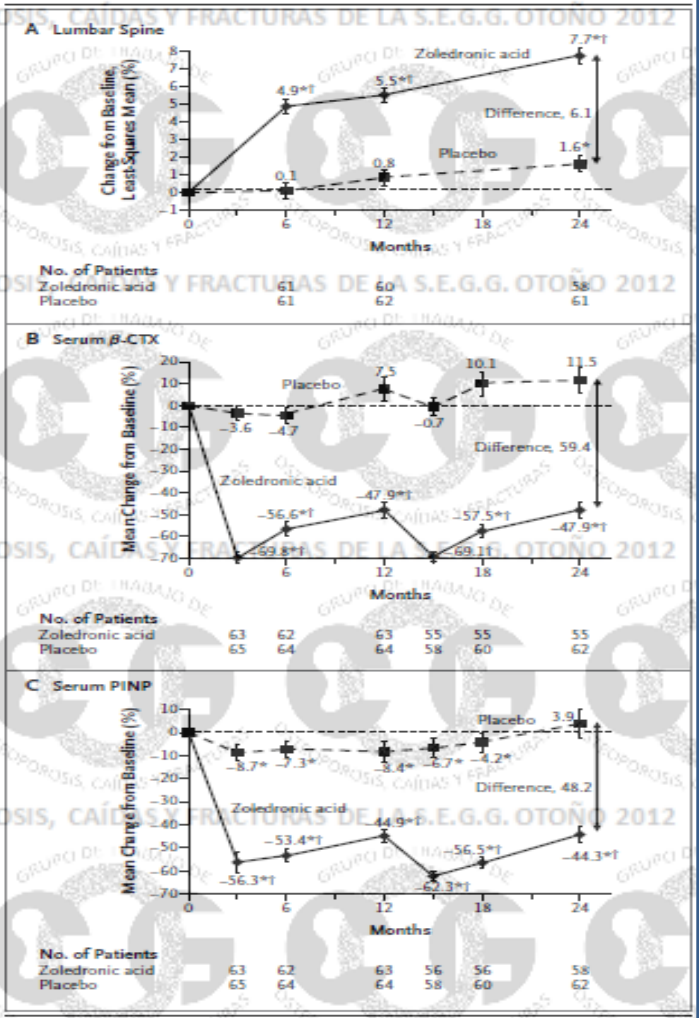


Figure 3. Percentage Change in Bone Mineral Density and Biochemical Markers over Time.

Results are shown for bone mineral density at the lumbar spine (Panel A), serum β-C-terminal telopeptide of type 1 collagen (β-CTX) (Panel B), and procollagen type I N-terminal propeptide (PINP) (Panel C) in a subgroup of patients. The asterisk denotes P<0.05 for the comparison with the baseline value, and the single dagger P<0.001 for the between-group comparison. Zoledronic acid or placebo was administered at months 0 and 12. The error bars represent standard errors of the mean. In Panels B and C, the values shown are based on unadjusted mean percentage changes.

SYSTEMATIC REVIEW

THE INTERNATIONAL JOURNAL OF CLINICAL PRACTICE

Comparison of clinical efficacy and safety between denosumab and alendronate in postmenopausal women with osteopo

T. Lin, C. Wang, X.-Z.

Review Criteria

Alendronate is the most widely prescribed class of therapy for osteoporosis; denosumab is a novel agent for osteoporosis with a distinct mechanism from alendronate. Both 60 mg denosumab subcutaneously every 6 month (Den SC Q6M) and 70 mg alendronate orally every week (Aln QW) were reported previously to effectively reduce fracture risk for postmenopausal women with low bone mineral density.

Message for the Clinic

Within 1 year 60 mg Den SC Q6M treatment was more effective in increasing bone mass but could not reduce the fracture risk to a greater extent than 70 mg Aln QW therapy. Also, the Den SC Q6M therapy did not increase the risks of neoplasms and infections compared with Aln QW.

SUMMARY

The aim of this study was to
safety profile between 60 mg
(Q6M) and 70 mg alendronat
women with low bone mineral
ing efficacy and safety of Den
The primary outcomes of effic
clinical fracture in both groups
tal sites. And adverse events
tions, were considered as s
'Cochrane Handbook for syste
eligible studies, evaluated the
Four heterogeneous randomis
were identified. The results of
the hypothesis the denosumab
(95% CI) 1.42 (0.84 to 2.40)
more), p = 0.19] but the mod
with 60 mg Den SC Q6M w
increasing BMD (at distal radi
ral neck (FN)]. Hazards of neoplasms [OR (95% CI) 1.10 (0.65 to 1.86), 3 more per 1000 (from 10 fewer to 24 more), p = 0.62] or infections [OR (95% CI) 0.95 (0.79 to 1.15), 12 fewer per 1000 (from 53 fewer to 33 more,), p = 0.62] were appeared to be similar. Our review suggested within 1 year 60 mg Den SC Q6M treatment was more effective in increasing bone mass but could not reduce the fracture risk to a greater extent than 70 mg Aln QW therapy. Also the Den SC Q6M therapy did not increase the risks of neoplasms and infections compared with Aln QW.

Department of Orthopaedic Surgery, Second Affiliated Hospital, School of Medicine, Zhejiang University, Hangzhou, China

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Disclosures
All funding sources were independent and had no influence on the study design, the data extraction, analyses, interpretation of the data, writing of this article, or in the decision to submit the article for publication. All the authors state that they have no conflicts of interest.

Clinical Trial Registration Number:
Not required.

Osteoporos Int (2010) 21:1181–1187
DOI 10.1007/s00198-009-1050-7

ORIGINAL ARTICLE

Osteoporosis and venous thromboembolism: a retrospective cohort study in the UK General Practice Research Database

G. Breart · C. Cooper · O. Meyer · C. Speirs · N. Deltour · J. Y. Reginster

Conclusion This study shows a greater association of VTE in osteoporotic compared to non-osteoporotic patients, but does not show any greater association in treated patients with strontium ranelate or alendronate compared to untreated osteoporotic patients.

Osteoporos Int (2012) 23:305–315
DOI 10.1007/s00198-011-1758-z

ORIGINAL ARTICLE

Effects of strontium ranelate and alendronate on bone microstructure in women with osteoporosis

Results of a 2-year study

R. Rizzoli · R. D. Chapurlat · J.-M. Laroche · M. A. Krieg · T. Thomas · I. Frieling · S. Boutroy · A. Laib · O. Bock · D. Felsenberg

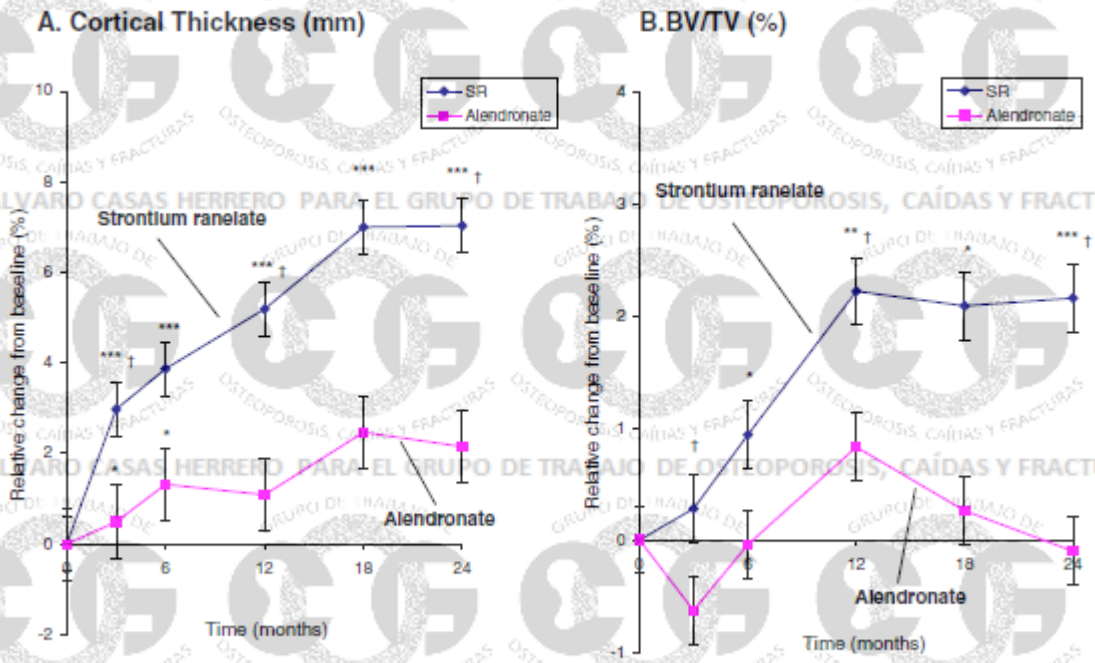

Fig. 2 Change in cortical thickness (A) and bone volume fraction (BV/TV) (B) in distal tibia throughout the duration of the study (relative change from baseline ± SD). *$P<0.05$; **$P<0.01$; ***$P<0.001$ versus baseline. †$P<0.05$ strontium ranelate versus alendronate

CONCLUSIONES

- Los fármacos antiosteoporóticos son **sólo una parte** del trat antifractura.
- El **objetivo primordial** del trat antiosteoporótico en el anciano es la **prevención de la fractura de cadera**.
- La **elección del tratamiento** se hará de forma individualizada, en función de la **comorbilidad** y el **pronóstico (vital y funcional)**.
- La **adherencia**, la **tolerancia** así como la **eficacia** del fármaco son otros factores a tener en cuenta.

MUCHAS GRACIAS!!!!!