MALATTIE MUSCOLO-SCHELETRICHE

TERAPIA INTEGRATA, PERSONALIZZATA E QUALITÀ DI VITA

ROMA 6 - 7 ottobre 2023

GISMO

Gruppo Italiano Studio
malattie Metabolismo Osseo

- Osteoporosi
- Malattie Muscolo-Scheletriche
- Malattie Metaboliche
- Dolore
- Nutrizione

Professor Agostino Gaudio

Università degli Studi di Catania

La fragilità scheletrica nel paziente internistico

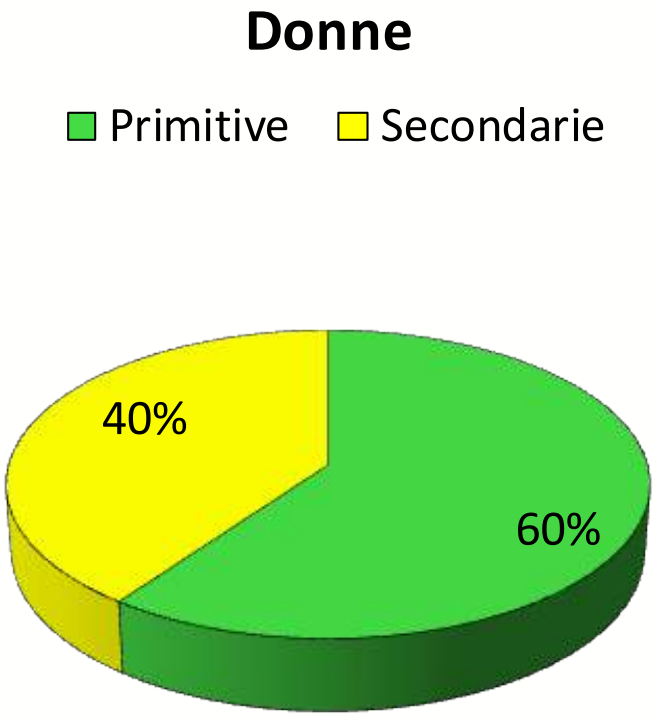
Il sottoscritto Agostino Gaudio

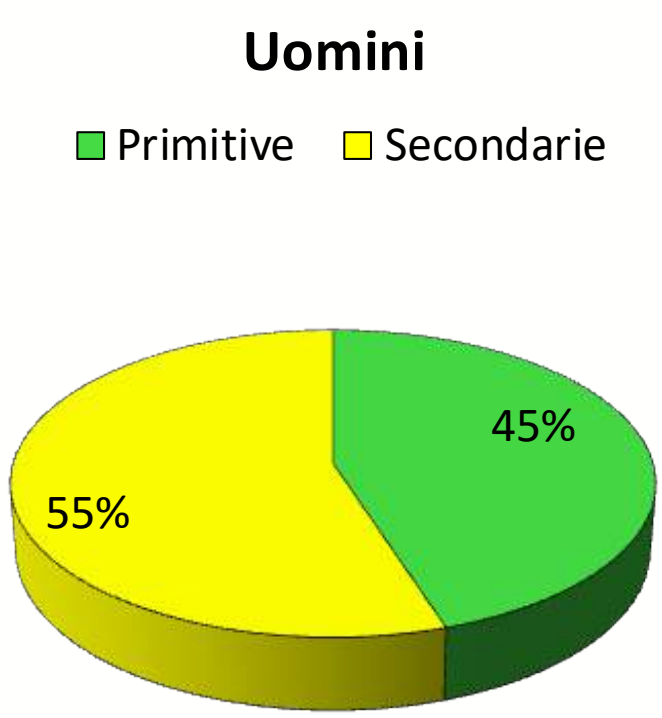
ai sensi dell'art. 76, comma 4 dell'Accordo Stato-Regioni del 2 febbraio 2017 e del paragrafo 4.5. del Manuale nazionale di accreditamento per l'erogazione di eventi ECM

dichiara che

negli ultimi due anni non ha avuto rapporti con soggetti portatori di interessi commerciali in ambito sanitario.

Frequenza forme primitive e secondarie osteoporosi





NIH Consensus Development Panel on Osteoporosis prevention, diagnosis and therapy. JAMA , 2001

Modalità di presentazione dell' osteoporosi secondaria

- in corso di malattia clinicamente nota

- come epifenomeno clinico di esordio

Quando sospettare un'osteoporosi secondaria?

- Soggetti giovani
- Sesso maschile
- Fratture da traumi lievi
- Nefrolitiasi recidivante
- Segni clinici di ipercortisolismo
- Segni clinici di ipertiroidismo
- Sclere blu, ipoacusia
- Farmaci osteopenizzanti

Cause secondarie di osteoporosi

Patologie endocrino-metaboliche	Condizioni nutrizionali o gastrointestinali	Farmaci	Malattie reumatologiche	Altre
Acromegalia	Alcolismo	Antiepilettici	Artrite reumatoide	AIDS/HIV
Diabete mellito di	Anoressia nervosa	Inibitori dell'aromatasi	LES	BPCO
tipo 1	Deficit di calcio	Antineoplastici	Spondilite anchilosante	Malattia di Gaucher
tipo 2	Malattia epatica cronica	Immunosoppressori		Emofilia
Deficit di GH	Sindrome da	Agonisti GnRH		Ipercalciuria
Ipercorticosurrenalismo	malassorbimento	Inibitori pompa		Immobilizzazione
Iperparatiroidismo	-malattia celiaca	protonica		Depressione maggiore
Ipertiroidismo	-malattia di Crohn	Glucocorticoidi		Mieloma
Ipogonadismo	-rettocolite ulcerosa	SSRI		Trapianto d'organo
Ipofosfatasia	-bypass o resezione gastrica	Tiazolidinedioni		Insufficienza renale
Porfiria	Nutrizione parenterale			Thalassemia
Gravidanza	totale			
	Deficit di vitamina D			

Modificata da AACE Postmenopausal Osteoporosis Guidelines, Endocr Pract, 2010

Patologie

- Diabete
- BPCO
- MICI
- Epatopatie
- Insufficienza renale
- Ictus
- Malattie reumatiche
- Malattie ematologiche

Le patologie croniche più frequentemente riferite fra i 18 e i 69 anni

Indicatori - PASSI 2021-2022

ITALIA n = 50849	%	IC95% inf	IC95% sup
Cardiopatie	5.0	4.8	5.3
Ictus o ischemia cerebrale	0.7	0.7	0.9
Tumori	4.3	4.0	4.5
Malattie respiratorie croniche	6.4	6.1	6.7
Diabete	4.7	4.5	4.9
Malattie croniche del fegato e/o cirrosi	1.1	1.0	1.2
Insufficienza renale	1.0	0.9	1.2

Patologie

- **Diabete**
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- MICI
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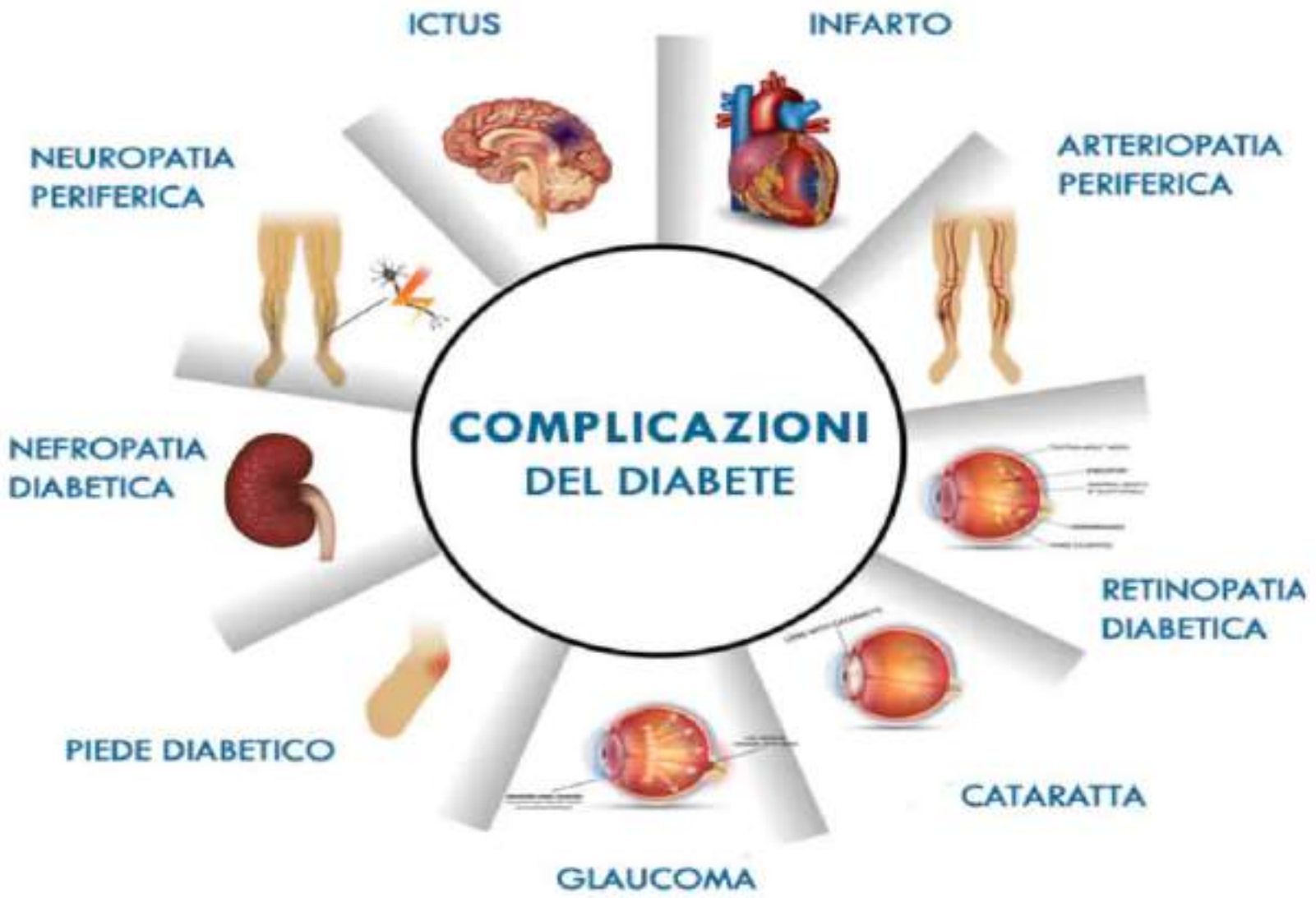
- Malattie reumatiche
- Malattie ematologiche



https://www.my-personaltrainer.it/salute/complicanze-acute-diabete.html

POSITION PAPER

European guidance for the diagnosis and management of osteoporosis in postmenopausal women

J. A. Kanis · E. V. McCloskey · H. Johansson · C. Cooper · R. Rizzoli · J.-Y. Reginster · on behalf of the Scientific Advisory Board of the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO) and the Committee of Scientific Advisors of the International Osteoporosis Foundation (IOF)

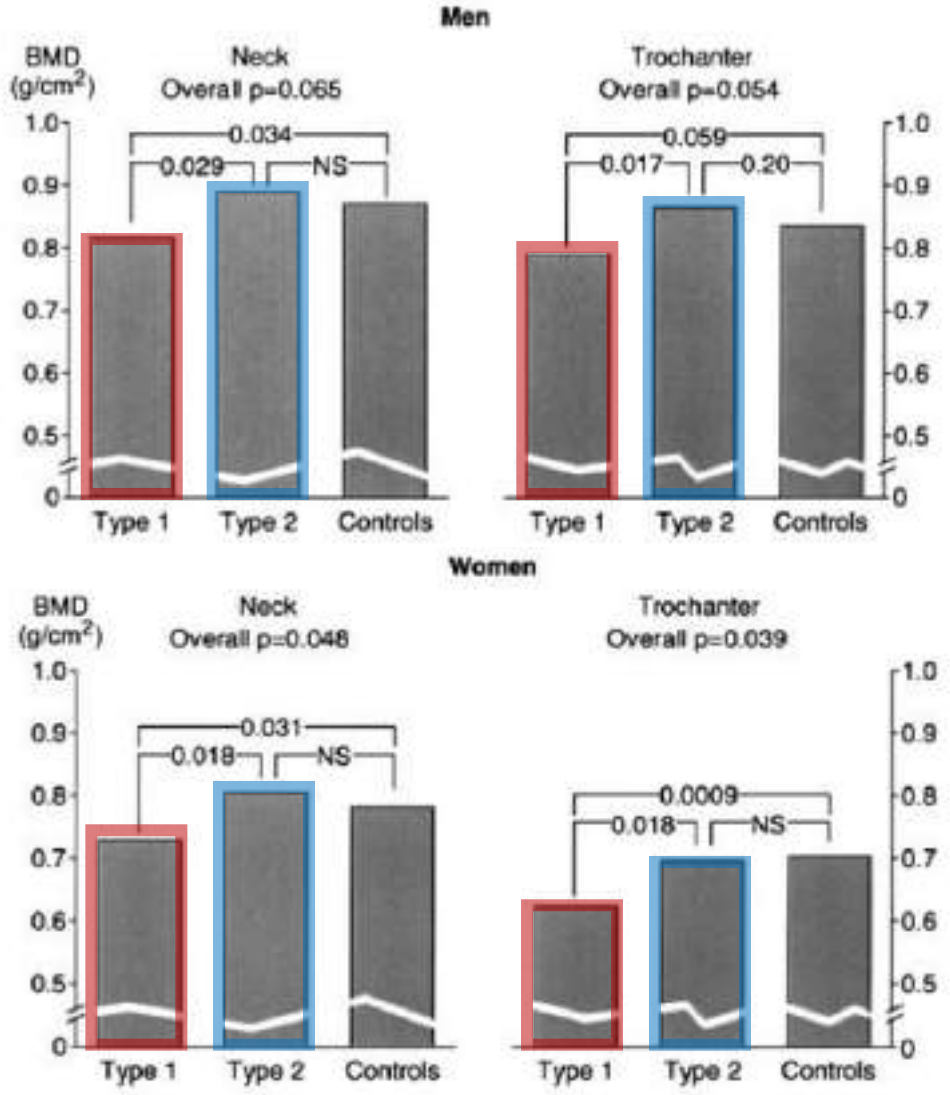
Osteoporosis International 2013

Table 5 Clinical risk factors used for the assessment of fracture probability ([8] with permission from the WHO Collaborating Centre, University of Sheffield, UK)

Age
Sex
Low body mass index
Previous fragility fracture, particularly of the hip, wrist and spine, including morphometric vertebral fracture in adult life
Parental history of hip fracture
Glucocorticoid treatment (≥5 mg prednisolone daily or equivalent for 3 months or more)
Current smoking
Alcohol intake 3 or more units daily
Causes of secondary osteoporosis
•Rheumatoid arthritis
•Untreated hypogonadism in men and women, e.g. premature menopause, bilateral oophorectomy or orchidectomy, anorexia nervosa, chemotherapy for breast cancer, hypopituitarism, androgen deprivation therapy in men with prostate cancer
•Inflammatory bowel disease, e.g. Crohn's disease and ulcerative colitis. It should be noted that the risk is in part dependent on the use of glucocorticoids, but an independent risk remains after adjustment for glucocorticoid exposure.
•Prolonged immobility, e.g. spinal cord injury, Parkinson's disease, stroke, muscular dystrophy, ankylosing spondylitis
•Organ transplantation
•Type 1 and type 2 diabetes
•Thyroid disorders, e.g. untreated hyperthyroidism, thyroid hormone suppressive therapy
•Chronic obstructive pulmonary disease

BMD in Patients with Type 1 and Type 2 Diabetes

Mean age- and BMI-adjusted BMD at the proximal femur of subjects with DM1 (29 men, 27 women), DM2 (34 men, 34 women), and without DM (240 men, 258 women)



Tuominen et al. Diabetes Care 1999;22:1196-200

I pazienti diabetici hanno un incrementato rischio di frattura rispetto alla popolazione non diabetica.

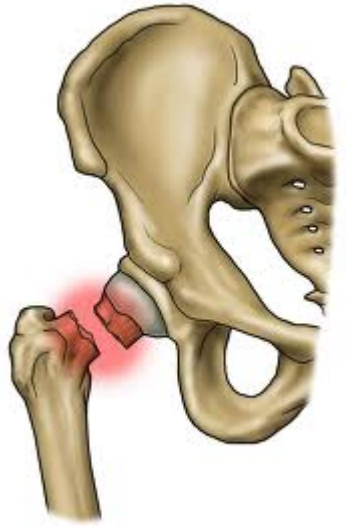
Women with clinically diagnosed type 2 diabetes at baseline in the Women's Health Initiative Observational Cohort, a prospective study of postmenopausal women (n. 93,676)

Risk of Fracture in Women with Type 2 Diabetes: the Women's Health Initiative Observational Study

Denise E. Bonds, Joseph C. Larson, Ann V. Schwartz, Elsa S. Strotmeyer, John Robbins, Beatriz L. Rodriguez, Karen C. Johnson, and Karen L. Margolis

TABLE 3. Rate of fracture per 1000 person-years for women with diabetes *vs.* nondiabetic women

	Fractures per 1,000 person-yr (n)		
	Diabetic women	Nondiabetic women	*P* value
Any fracture	28.6 (899)	22.0 (12,575)	<0.0001
Hip/pelvis/upper leg	3.8 (128)	2.5 (1,531)	<0.0001
Lower leg/ankle/knee	6.2 (207)	4.7 (2,828)	0.0001
Foot	4.6 (153)	3.2 (1,940)	<0.0001
Upper arm/shoulder/elbow	3.8 (129)	2.8 (1,717)	0.0008
Lower arm/wrist/hand	5.3 (177)	5.2 (3,161)	0.83
Spine/tailbone	2.9 (99)	2.2 (1,336)	0.004



Fratture e diabete mellito: durata delle malattia

In una sub-analisi dello studio Rotterdam, il rischio di frattura era più elevato solo nei pazienti con diagnosi di DM2 formulata da più tempo e già in trattamento (RR 1.69; 95% CI 1.16.2.46), ma no nei diabetici di nuova diagnosi (RR 1.01; 95% CI 0.68-1.52).

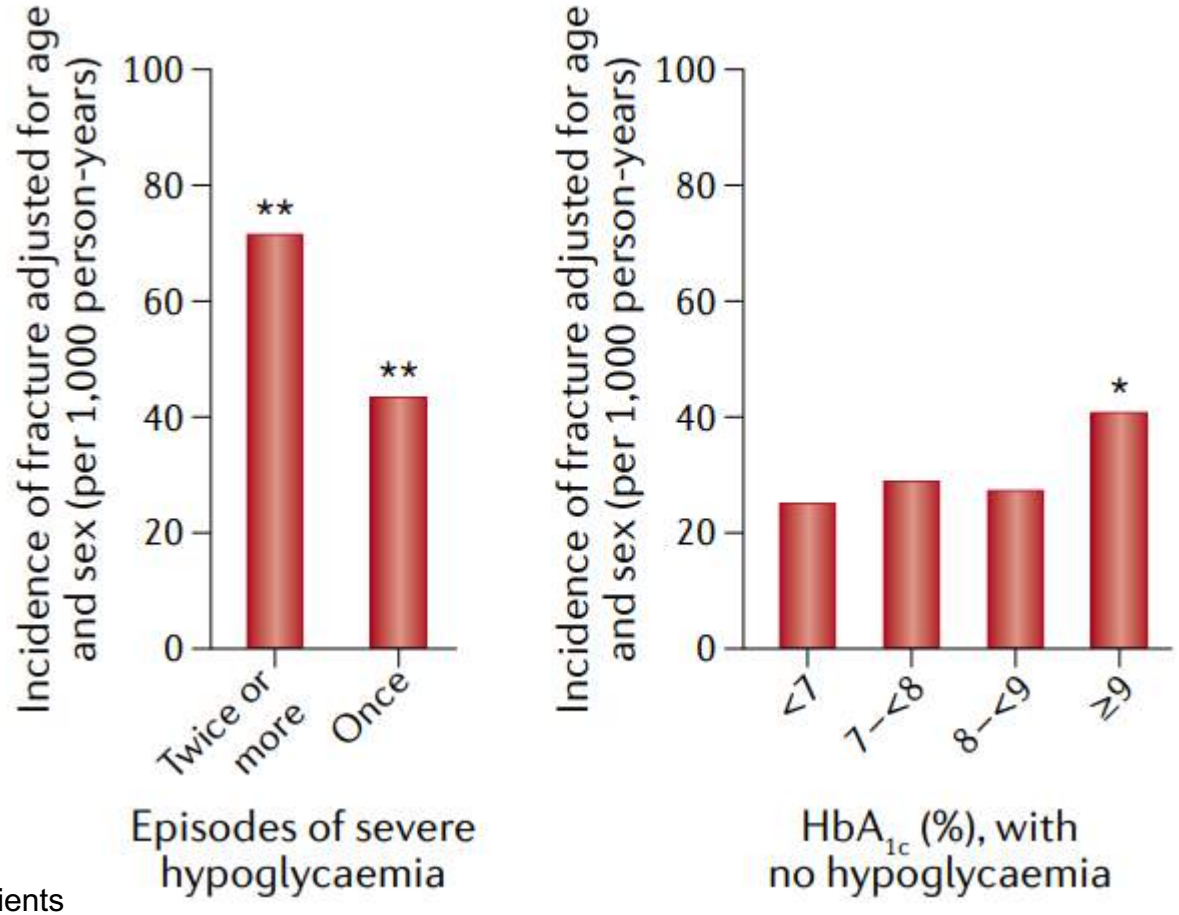
Table 5 Hazard ratios (*HR*) and 95% confidence interval (*CI*) of fracture risk by subjects with treated type-2 diabetes mellitus, subjects with newly diagnosed type 2-diabetes mellitus and subjects with impaired glucose tolerance compared with subjects with normal glucose tolerance

Fracture	Adjustments	Subjects with treated diabetes (n = 354) HR (95%CI)	Subjects with newly diagnosed diabetes (n = 424) HR (95%CI)	Subject with impaired glucose tolerance (n = 1,543) HR (95%CI)	Subjects with normal glucose tolerance (n = 4,320) HRReference
Nonvertebral	Crude	1.82 (1.39–2.39)	0.98 (0.72–1.34)	0.96 (0.80–1.14)	1
	Age, gender	1.38 (1.05–1.82)	0.80 (0.58–1.09)	0.85 (0.71–1.01)	1
	Full model†	1.68 (1.20–2.36)	0.82 (0.56–1.18)	0.83 (0.67–1.02)	1
	Full model†, BMD femoral neck	1.69 (1.16–2.46)	1.01 (0.68–1.52)	0.80 (0.63–1.00)	1
Hip	Crude	2.51 (1.56–4.03)	1.54 (0.91–2.59)	1.35 (0.99–1.86)	1
	Age, gender	1.41 (0.88–2.27)	0.90 (0.52–1.52)	0.98 (0.72–1.36)	1
	Full model†	1.64 (0.89–3.02)	0.86 (0.45–1.64)	1.08 (0.74–1.57)	1
	Full model†, BMD femoral neck	1.26 (0.57–2.78)	1.47 (0.73–2.97)	1.19 (0.77–1.83)	1
Wrist	Crude	1.59 (0.94–2.71)	0.72 (0.37–1.41)	0.68 (0.47-.99)	1
	Age, gender	1.40 (0.81–2.40)	0.67 (0.34–1.31)	0.64 (0.44–93)	1
	Full model†	2.04 (1.08–3.85)	0.73 (0.29–1.01)	0.58 (0.37-.91)	1
	Full model†, BMD femoral neck	2.14 (1.10–4.18)	0.82 (0.33–2.02)	0.49 (0.29-.82)	1

†Full model including: age, gender, BMI, smoking, serum creatinine, visual acuity, falling frequency and lower limb disability

De Liefde I et al. Osteoporos Int, 2005

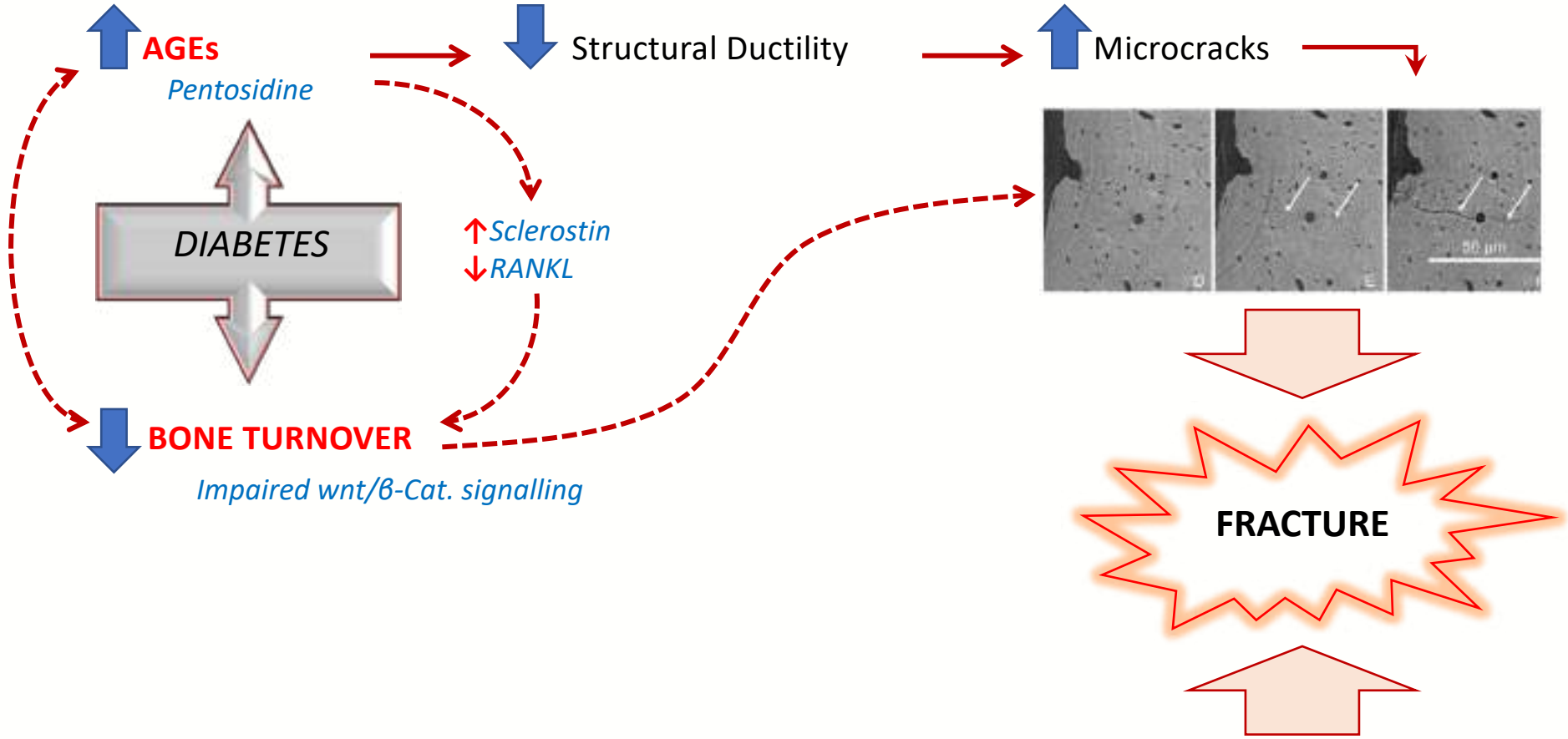
Diabete e fratture: controllo glicemico



4,706 Japanese patients with T2DM were followed prospectively (median of 5.3 years)

Modified from Komorita Y, et al. Diabet Med. 2020

Major Pathogenetic Mechanisms for Skeletal Fragility in Type 2 Diabetes



Chiodini I, Gaudio A, et al Nutr Metab Cardiovasc Dis. 2021

Table 2 | **Effects of hypoglycaemic agents on fracture risk in T2DM**

Agent	Bone biomarkers		BMD	Fracture
	Bone formation	Bone resorption		
Metformin	↓/=	↓/=	=/↑	↓/=
Sulfonylureas	↑/=	↓/=	ND	↓/=/↑
Thiazolidinediones	↓↓/=/↑	↑↑/=	↓↓/=	↑↑/=
Incretin (GLP1 analogue)	=	↓↓*	↑/=	=
Incretin (DPP4 inhibitor)	↓/=	=	--	↓/=
SGLT2 inhibitor	=	=/↑	=	=/↑
Insulin	=	=	=	↑

↑ Increased. ↓Decreased. = Unchanged. DPP4, dipeptidyl peptidase inhibitor 4; GLP1, glucagon-like peptide 1; GLP2, glucagon-like peptide 2; ND, not determined; SGLT2, sodium/glucose cotransporter 2; T2DM, type 2 diabetes mellitus. *GLP2 administration. Adapted with permission of Springer © Palermo, A. *et al. Osteoporos. Int.* 26, 2073–2089 (2015).

Napoli, N. et al. Nat. Rev. Endocrinol 2016

Nota 79

Prevenzione primaria in donne in menopausa o uomini di età ≥ 50 anni a rischio elevato di frattura a causa di almeno una delle condizioni sottoelencate:			
Condizione	I scelta terapeutica	II scelta	III scelta
Trattamento in atto o previsto per > 3 mesi con prednisone equivalente ≥ 5 mg/die	Alendronato (±vit D) Risedronato Zoledronato	Denosumab	---------
Trattamento in corso di blocco ormonale adiuvante in donne con carcinoma mammario o uomini con carcinoma prostatico	Alendronato (±vit D) Risedronato Zoledronato Denosumab	---------	----------
T-score colonna o femore ≤ -4	Alendronato (±vit D) Risedronato	Denosumab Zoledronato Ibandronato Raloxifene Bazedoxifene	Stronzio ranelato
T-score colonna o femore ≤ -3 + almeno una delle seguenti condizioni: 1) Familiarità per fratture di vertebre o femore 2) Comorbilità a rischio di frattura (artrite reumatoide o altre connettiviti, diabete, broncopneumopatia cronica ostruttiva, malattia infiammatoria cronica intestinale, AIDS, Parkinson, sclerosi multipla, grave disabilità motoria			

Patologie

- Diabete
- **BPCO**
- MICI
- Epatopatie
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- Malattie reumatiche
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BPCO e Comorbidità

Alcune comuni comorbidità che sopravvengono in pazienti con BPCO con malattia stabile includono:

- Patologie Cardiovascolari (CVD)
- Insufficienza cardiaca
- Cardiopatia ischemica (IHD)
- Aritmie
- Patologie vascolari periferiche
- Ipertensione
- **Osteoporosi**
- Ansia e Depressione
- BPCO e tumore del polmone
- Sindromi metaboliche e Diabete
- Reflusso Gastro-Esofageo (RGE)
- Bronchiectasie
- Apnee ostruttive del sonno

Prevalenza osteoporosi nella BPCO

XIX CONGRESSO NAZIONALE

TABLE 1 Prevalence of osteoporosis and osteopenia in patients with chronic obstructive pulmonary disease (COPD)

First author [ref.]	Setting/patient group selection	Subjects n	Age yrs	Sex M/F n	FEV1 % pred	BMI kg·m-2	FFMI kg·m-2	BMD measurement/ interpretation	Osteopenia	Osteoporosis
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8,7%

775 pazienti con BPCO da 13 studi.
Prevalenza media osteoporosi 35.1%
(8.7% - 69%)

69 %

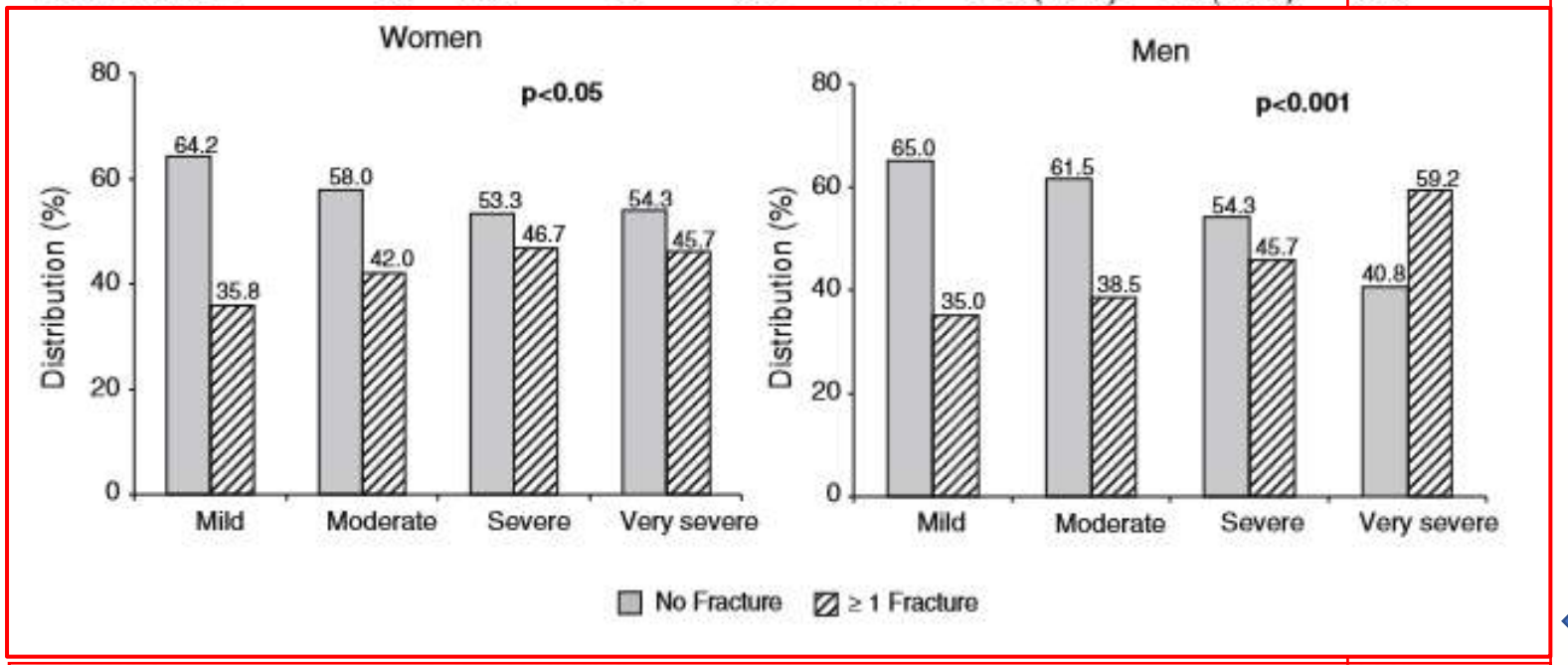
60 %

L. Graat-Verboom et al, Eur Respir J 2009

BPCO e fratture vertebrali

Table 1 Prevalence of osteoporosis defined by BMD and vertebral fracture evaluated by X-ray exams

Study	N	Sex (M/F)	Age (years)	BMI (kg/cm²)	FEV_1 %pred	Osteopenia by BMD	Osteoporosis by BMD	Vertebral fracture
Graat-Verboom et al[8]	775	67/33	63	24.9	46.7	27%–67%	9%–69%	–
Watanabe et al[7]	136	136/0	71	21.5	55.8	43% (21/49)[a]	39% (19/49)[a]	79%
Nuti et al[46]	3,030	1,778/1,262	70	27.0	–	–	–	41%
Kjensli et al[47]	465	231/234	63	25.0	45.0	–	–	31%
Katsura and Kida[37]	20	0/20	72	22.0	49.9	–	50%	40%



79%

27%

Sedi più comuni T7-T8 e T12-L1

Inoue D, et al International Journal of COPD 2016

BPCO e fratture vertebrali

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Watanabe et al[7]	136	136/0	71	21.5	55.8	43% (21/49)[a]	39% (19/49)[a]	79%
Graat-Verboom et al[10]	255	158/97	68	27.1	64.0	46%	24%	37%
Ferguson et al[39]	658	382/276	65	26.7	44.0	42%	23%	–
Graat-Verboom et al[40]	133	80/53	69	26.8	63.4	48%	22%	32%
Silva et al[42]	95	62/33	67	25.8	41.0	42%	42%	–
Ogura-Tomomatsu et al[56]	85	78/7	75	–	–	22%	24%	35%
Hattiholi and Gaude[43]	102	64/38	66	–	–	20%	67%	–
Carter et al[14]	350	350/0	68	–	–	–	–	52%
Jorgensen et al[58]	62	16/46	63	–	32.6	30%	41%	24% (3/15)[a]
McEvoy et al[44]	312	312/0	69	–	52.7	–	–	Thoracic/lumbar 49%/17%
Papaioannou et al[47]	127	–	72	–	32.5	–	–	27%
Nuti et al[48]	3,030	1,778/1,262	70	27.0	–	–	–	41%
Kjensli et al[49]	465	231/234	63	25.0	45.0	–	–	31%
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79%

27%

Sedi più comuni T7-T8 e T12-L1

Inoue D, et al International Journal of COPD 2016

Prevalenza fratture femore nella BPCO

Table 4| **Multivariate analysis for osteoporotic fracture and hip fracture in men in the derivation cohort. Data are adjusted hazard ratios (95% confidence interval)**

	Osteoporotic fracture	Hip fracture
Medical and social factors*		
Asthma or chronic obstructive airways disease	1.33 (1.26 to 1.42)	1.34 (1.22 to 1.48)
Any cancer	1.60 (1.43 to 1.73)	1.48 (1.29 to 1.69)
Cardiovascular disease	1.26 (1.19 to 1.34)	1.31 (1.22 to 1.41)
Dementia	1.90 (1.58 to 2.28)	2.63 (2.13 to 3.24)
Epilepsy diagnosis or prescribed anticonvulsants	2.19 (2.00 to 2.39)	2.45 (2.15 to 2.80)
History of falls	1.72 (1.51 to 1.96)	1.70 (1.43 to 2.03)
Chronic liver disease	2.58 (2.01 to 3.32)	2.13 (1.39 to 3.27)
Parkinson's disease	2.45 (2.06 to 2.92)	3.00 (2.37 to 3.79)
Rheumatoid arthritis or systemic lupus erythematosus	1.55 (1.33 to 1.82)	1.90 (1.53 to 2.37)
Chronic renal disease	1.58 (1.20 to 2.08)	1.81 (1.27 to 2.58)
Type 1 diabetes	2.33 (1.83 to 2.96)	4.83 (3.25 to 7.17)
Type 2 diabetes	1.25 (1.15 to 1.36)	1.33 (1.19 to 1.49)
Previous fracture	1.35 (1.20 to 1.53)	2.02 (1.70 to 2.40)
Gastrointestinal malabsorption	1.25 (1.03 to 1.51)	Not significant
Care or nursing home resident	1.59 (1.14 to 2.22)	2.05 (1.43 to 2.93)
Parental history of osteoporosis	5.47 (3.41 to 8.80)	3.43 (1.51 to 7.78)
Any antidepressants	1.60 (1.50 to 1.70)	1.69 (1.53 to 1.86)
Corticosteroids	1.34 (1.23 to 1.47)	1.18 (1.02 to 1.36)

Cohort study in 3,142,673 UK primary care patients with various comorbidities.

Julia Hippisley-Cox et al. BMJ 2012

Prevalenza fratture femore nella BPCO

Table 3| **Multivariate analysis for osteoporotic fracture and hip fracture in women in the derivation cohort. Data are adjusted hazard ratios (95% confidence interval)**

	Osteoporotic fracture	Hip fracture
Medical or social factors*		
Asthma or chronic obstructive airways disease	1.27 (1.23 to 1.31)	1.23 (1.16 to 1.31)
Any cancer	1.27 (1.20 to 1.34)	1.31 (1.22 to 1.42)
Cardiovascular disease	1.21 (1.17 to 1.26)	1.22 (1.17 to 1.29)
Dementia	1.97 (1.80 to 2.13)	2.57 (2.31 to 2.85)
Epilepsy diagnosis or prescribed anticonvulsants	1.54 (1.45 to 1.63)	1.62 (1.48 to 1.76)
History of falls	1.57 (1.47 to 1.68)	1.54 (1.42 to 1.68)
Chronic liver disease	1.89 (1.60 to 2.24)	1.91 (1.45 to 2.51)
Parkinson's disease	1.64 (1.47 to 1.83)	2.03 (1.75 to 2.35)
Rheumatoid arthritis or systemic lupus erythematosus	1.33 (1.25 to 1.43)	1.69 (1.53 to 1.86)
Chronic renal disease	1.27 (1.07 to 1.51)	1.51 (1.17 to 1.96)
Type 1 diabetes	1.92 (1.55 to 2.37)	4.63 (3.35 to 6.39)
Type 2 diabetes	1.27 (1.21 to 1.34)	1.57 (1.45 to 1.69)
Previous fracture	1.08 (1.03 to 1.13)	1.73 (1.62 to 1.85)
Endocrine disorders	1.23 (1.14 to 1.34)	1.33 (1.19 to 1.50)
Gastrointestinal malabsorption	1.17 (1.06 to 1.29)	Not significant
Parental history of osteoporosis	1.74 (1.47 to 2.05)	Not significant
Any antidepressants	1.37 (1.33 to 1.42)	1.39 (1.33 to 1.46)
Corticosteroids	1.21 (1.15 to 1.27)	1.19 (1.10 to 1.27)
Unopposed hormone replacement therapy	0.85 (0.80 to 0.91)	0.76 (0.65 to 0.89)

Cohort study in 3,142,673 UK primary care patients with various comorbidities.

Julia Hippisley-Cox et al. BMJ 2012

BPCO e biospia ossea

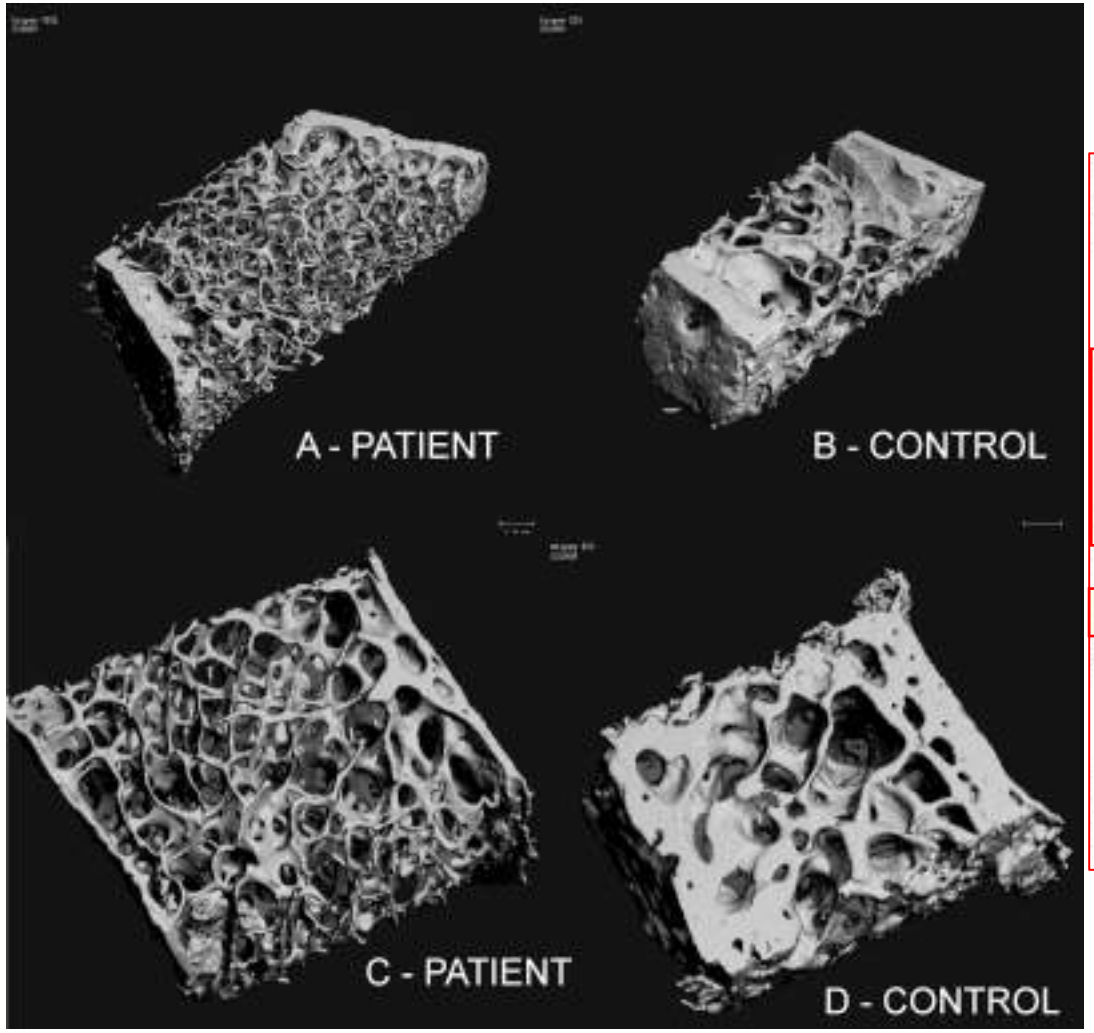


Table 3. Cancellous Structural Parameters by μCT, COPD Patients and Controls

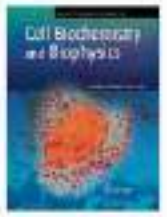
	COPD ($n = 19$)	μCT Controls ($n = 13$)	p Value
Cancellous BV/TV (%)	14.7 ± 4.9	21.3 ± 5.5	.01
Tb.Th* (μm)	141 ± 24	174 ± 36	.006
Tb.N* (per mm)	1.3 ± 0.2	1.7 ± 0.5	.003
Tb.Sp* (μm)	790 ± 183	614 ± 136	.01
Conn.D (per mm^3)	5.6 ± 2.7	7.9 ± 3.0	.04
DA	1.4 ± 0.1	1.4 ± 0.1	.47
TMD (mg HA/cm^3)	1033 ± 28	1002 ± 21	.006
SMI (1)	1.4 ± 0.4	1.3 ± 0.4	.51

Values are expressed as mean ± SD.
BV/TV = bone volume fraction; Tb.Th* = trabecular thickness; Tb.N* = trabecular number; Tb.Sp* = trabecular separation; Conn.D = connectivity density; DA = degree of anisotropy; TMD = tissue mineral density; SMI = structure model index.

Twenty women with COPD who had not received chronic oral glucocorticoids underwent bone biopsies after double tetracycline labeling.

Kulak C, et al JBMR 2010

Bone turnover in pazienti con BPCO



Cell Biochemistry and Biophysics
September 2014, Volume 70, Issue 1, pp 129-134

Bone Metabolism Status and Associated Risk Factors in Elderly Patients with Chronic Obstructive Pulmonary Disease (COPD)

	Uomini	Donne
P1NP	↓	↓
CTX	↓	=
OC	↓	=

50 COPD Chinese patients vs 50 controls

Xiaomei W, et al. Cell Biochemistry and Biophysics 2014

Fattori di rischio per osteoporosi nella BPCO

- Generali
  - Età
  - Fumo
  - Sarcopenia
  - Ridotta attività fisica
- Specifici
  - Infiammazione sistemica
  - Terapia steroidea
  - Deficit vitamina D

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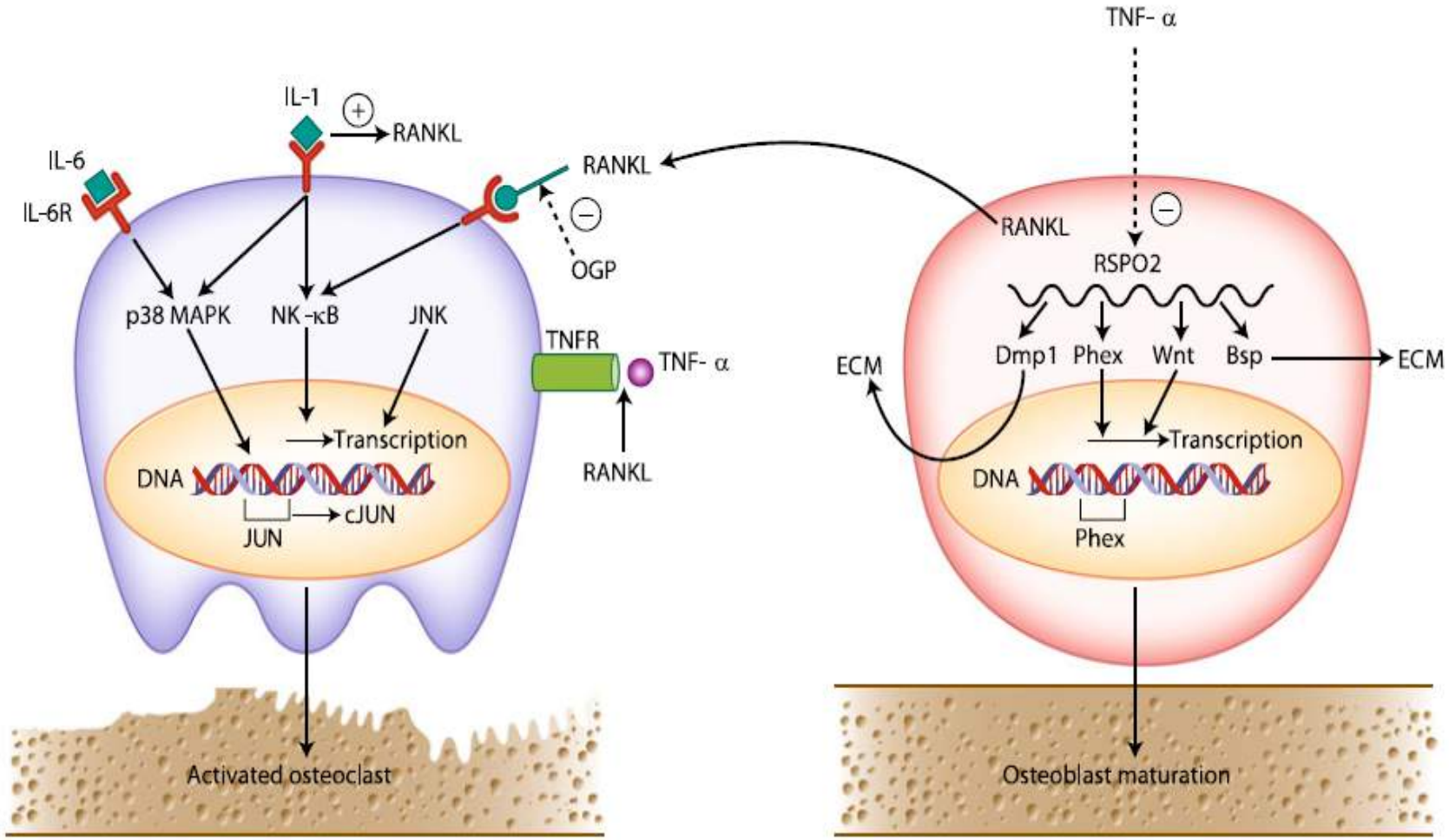
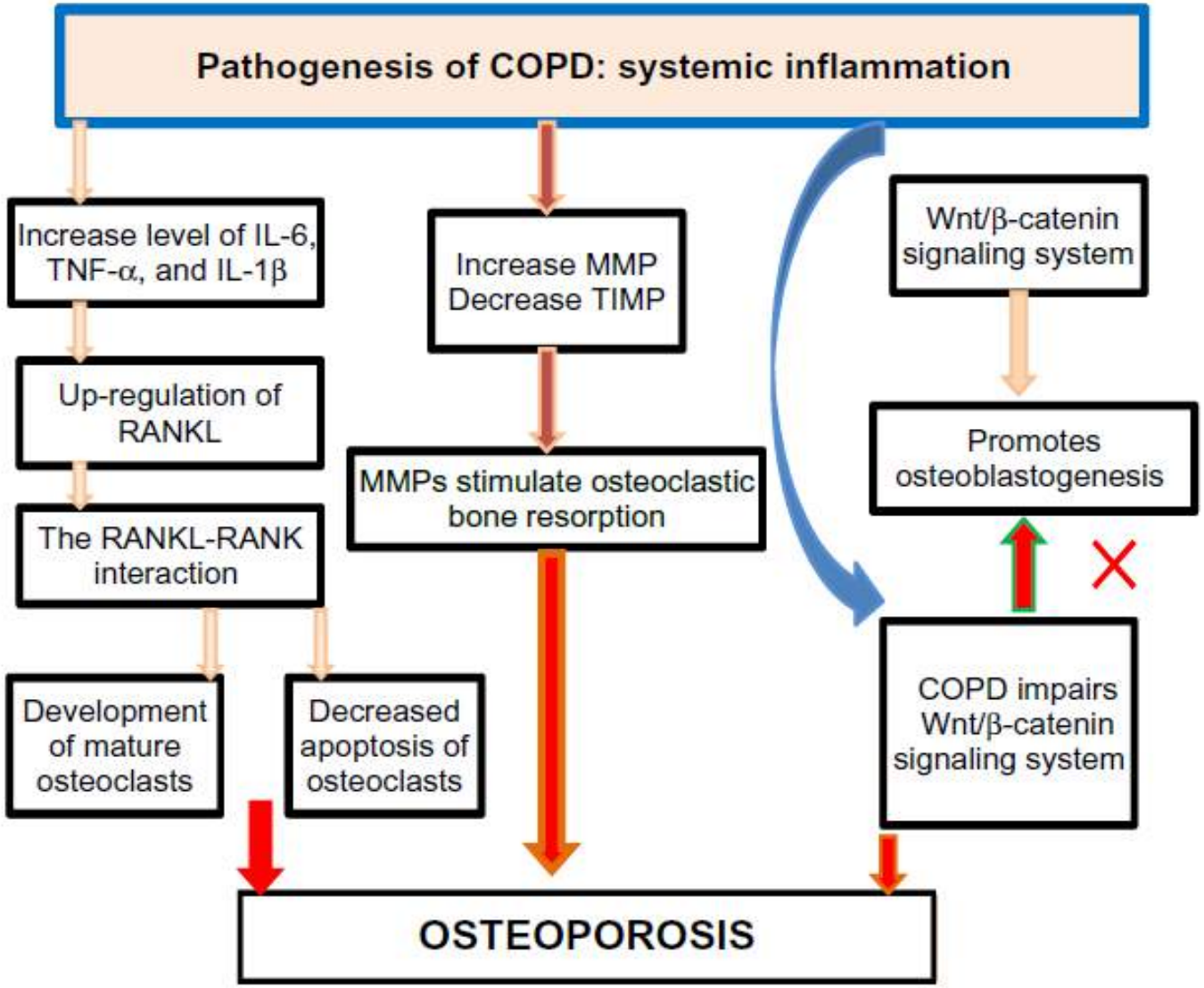


Agrawal M, et al Curr Osteoporos Rep 2011

Bai et al. Respiratory Research 2011



Sarkar M, et al. Clin Med Insights Circ Respir Pulm Med 2015

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Fratture e steroidi inalatori nella BPCO

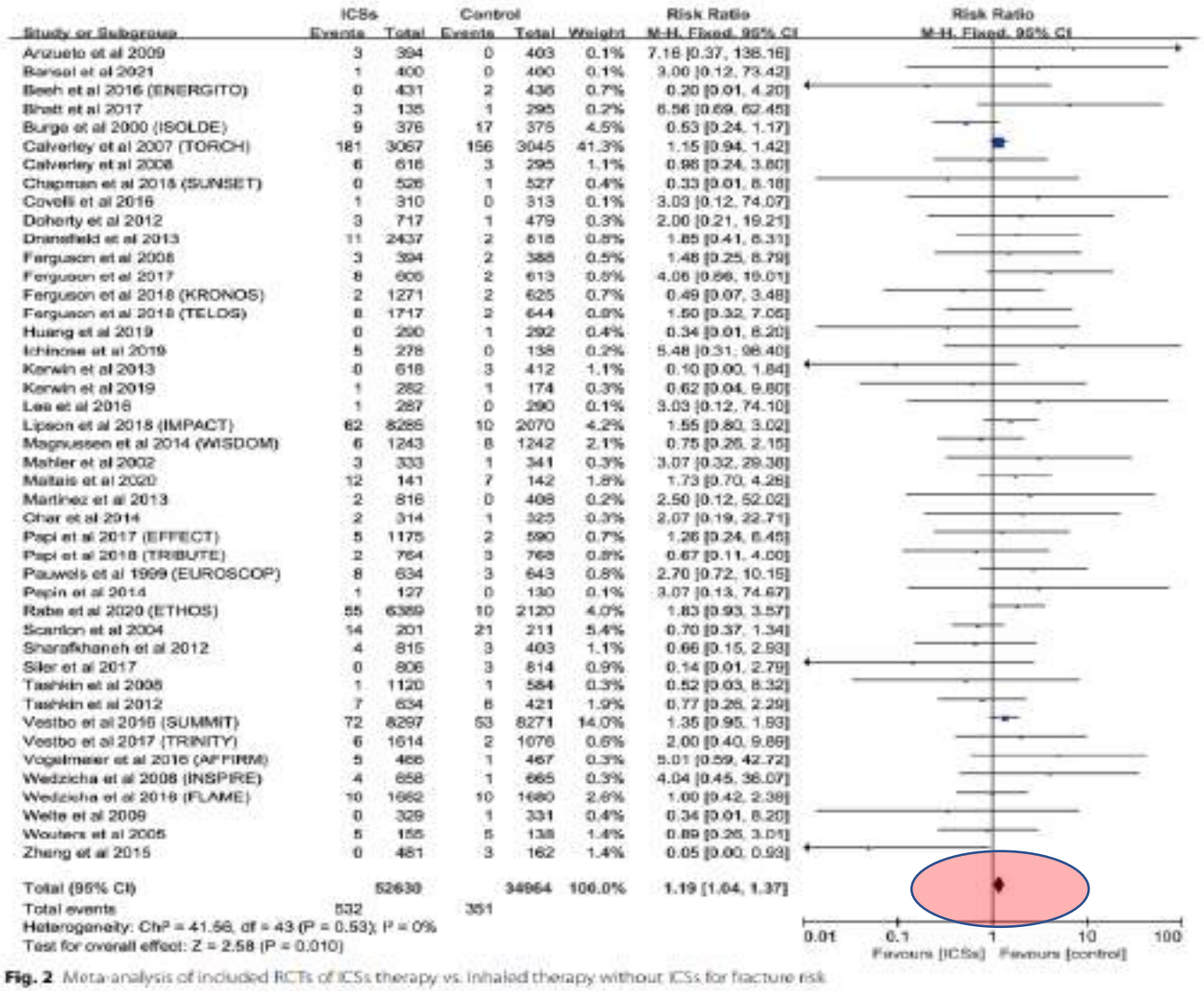

Fig. 2 Meta-analysis of included RCTs of ICSs therapy vs. inhaled therapy without ICSs for fracture risk

Inhaled therapy containing ICSs (RR, 1.19; 95%CI, 1.04–1.37; P=0.010), was significantly associated with the increased risk of fracture in COPD patients when compared with inhaled therapy without ICSs. Subgroup analyses showed that treatment duration≥12 months (RR, 1.19; 95%CI, 1.04–1.38; P=0.01), budesonide therapy (RR, 1.64; 95%CI., 1.07–2.51; P=0.02), fluticasone furoate therapy (RR, 1.37; 95%CI, 1.05–1.78; P=0.02), mean age of study participants≥65 (RR, 1.27; 95%CI, 1.01–1.61; P=0.04) were significantly associated with an increased risk of fracture.

RR, 1.19; 95%CI, 1.04–1.37; P=0.010

Forty-four RCTs were performed in 87,594 patients

Peng et al. BMC Pulmonary Medicine (2023)

Fratture e steroidi inalatori nella BPCO

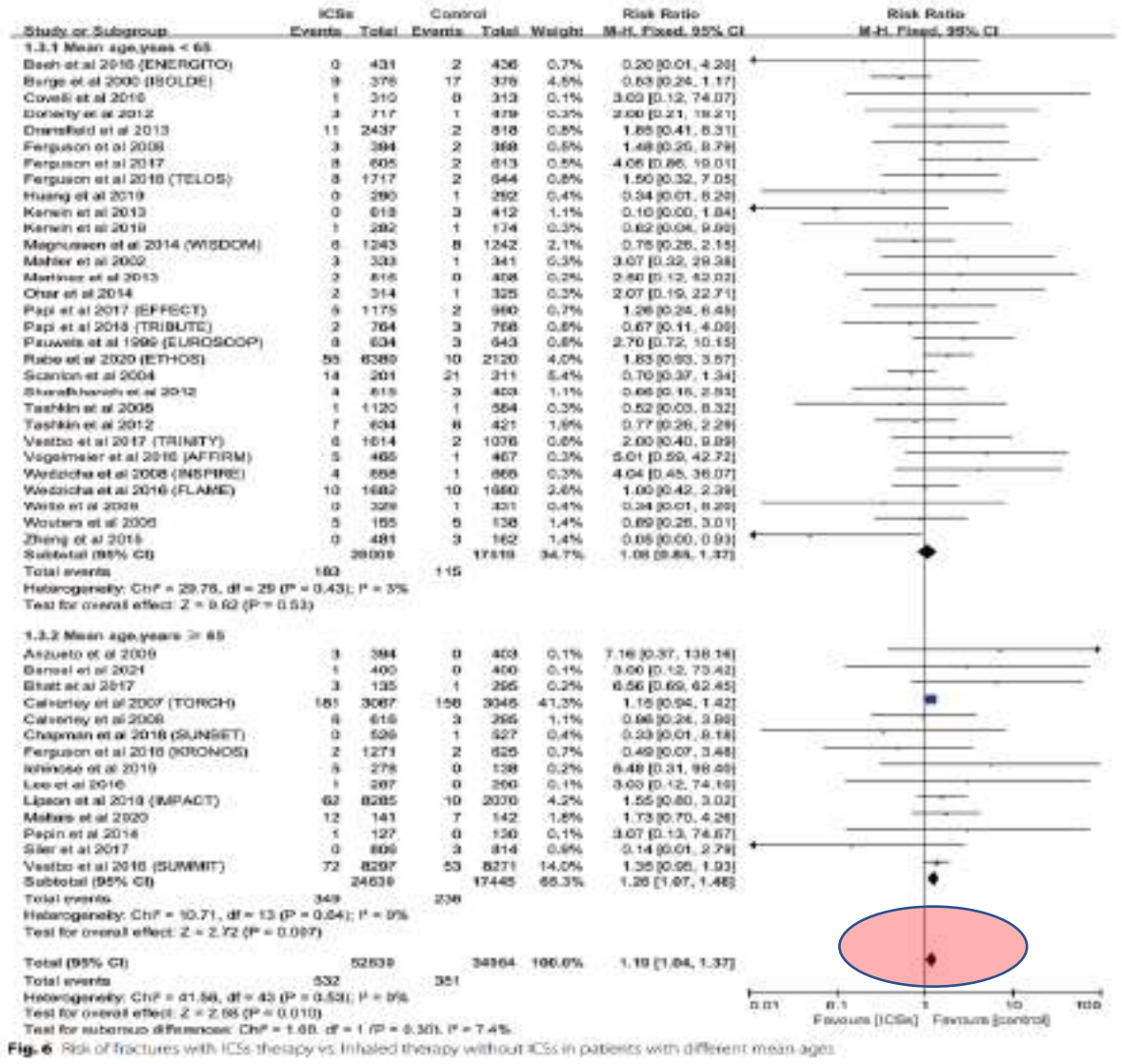

Fig. 6 Risk of fractures with ICSs therapy vs inhaled therapy without ICSs in patients with different mean ages

< 65 years

≥ 65 years

RR, 1.27; 95%CI, 1.01–1.61; P=0.04

Forty-four RCTs were performed in 87,594 patients

Peng et al. BMC Pulmonary Medicine (2023)

Fattori di rischio per osteoporosi nella BPCO

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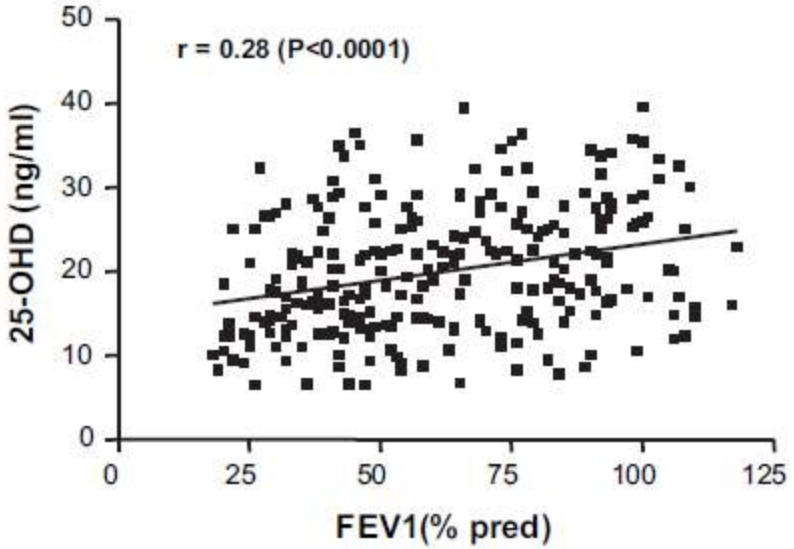
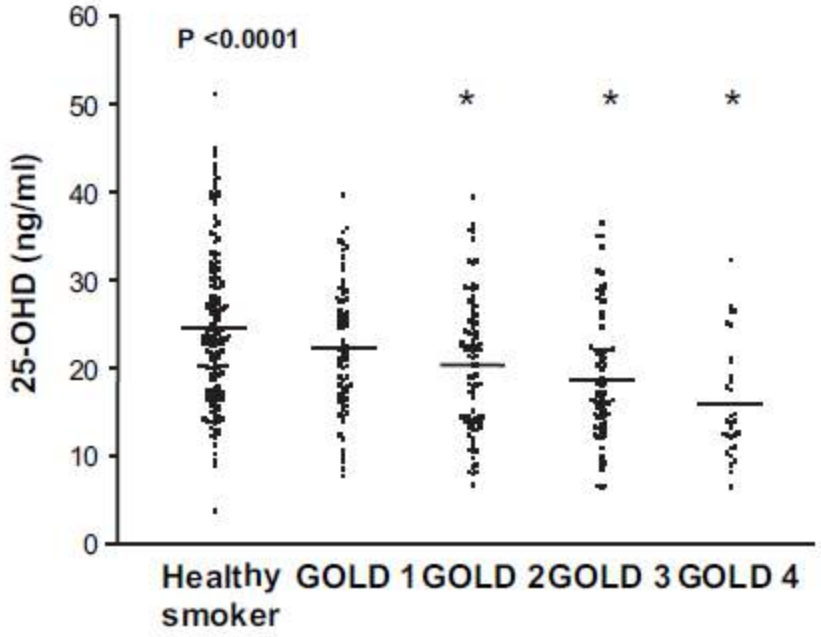
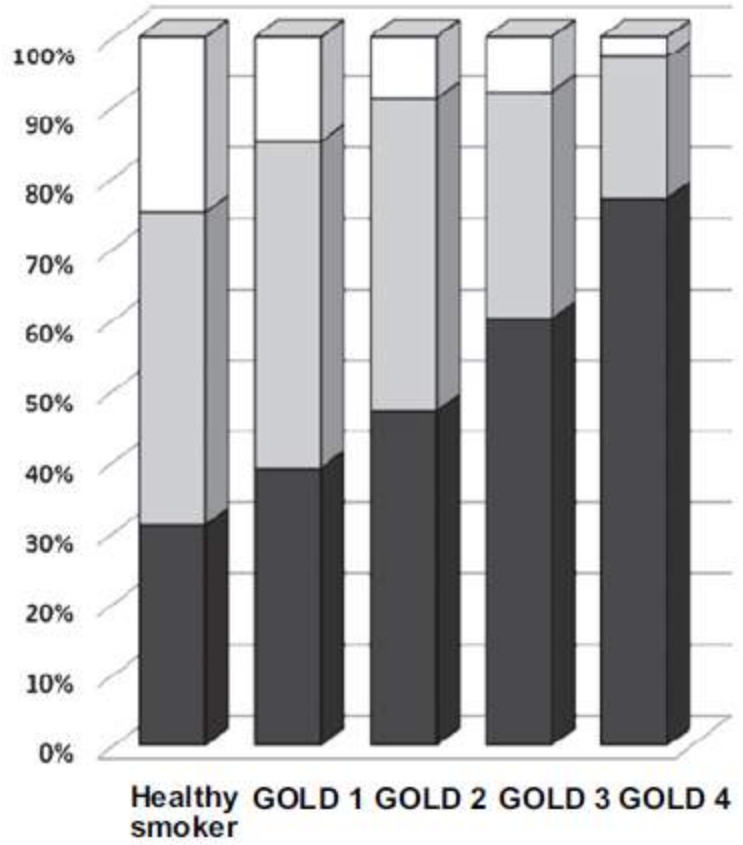






25 OHD > 30 ng/ml

25 OHD tra 20 e 30 ng/ml

25 OHD < 20 ng/ml

Wim Janssens, et al. Thorax 2010

Nota 79

Prevenzione primaria in donne in menopausa o uomini di età ≥ 50 anni a rischio elevato di frattura a causa di almeno una delle condizioni sottoelencate:			
Condizione	I scelta terapeutica	II scelta	III scelta
Trattamento in atto o previsto per > 3 mesi con prednisone equivalente ≥ 5 mg/die	Alendronato (±vit D) Risedronato Zoledronato	Denosumab	---------
Trattamento in corso di blocco ormonale adiuvante in donne con carcinoma mammario o uomini con carcinoma prostatico	Alendronato (±vit D) Risedronato Zoledronato Denosumab	---------	----------
T-score colonna o femore ≤ -4	Alendronato (±vit D) Risedronato	Denosumab Zoledronato Ibandronato Raloxifene Bazedoxifene	Stronzio ranelato
T-score colonna o femore ≤ -3 + almeno una delle seguenti condizioni: 1) Familiarità per fratture di vertebre o femore 2) Comorbilità a rischio di frattura (artrite reumatoide o altre connettiviti, diabete, broncopneumopatia cronica ostruttiva, malattia infiammatoria cronica intestinale, AIDS, Parkinson, sclerosi multipla, grave disabilità motoria			

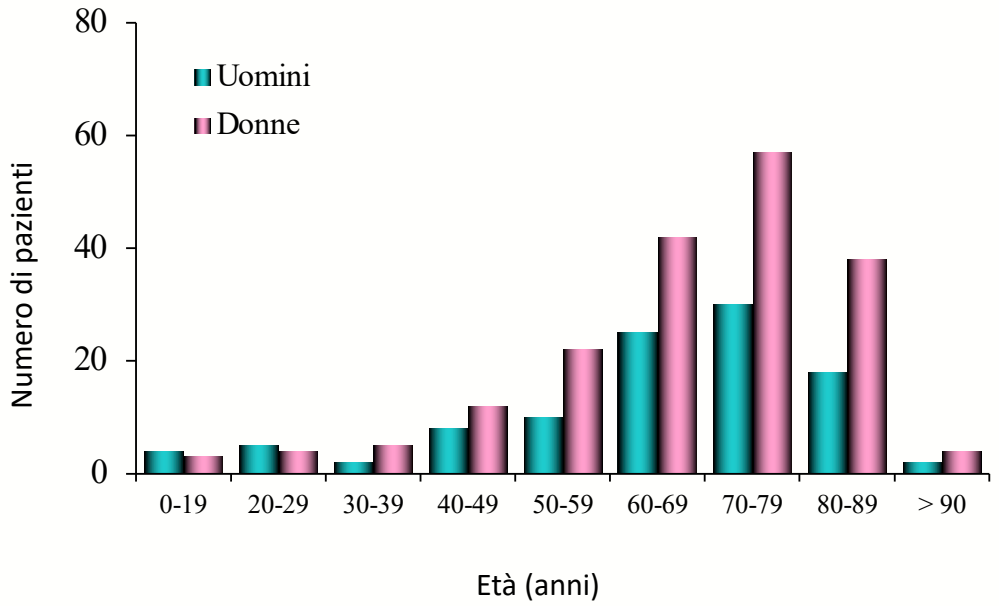
Farmaci

- **Corticosteroidi**
- Anticoagulanti
- Diuretici
- Inibitori pompa-protonica
- Anti-convulsivanti
- Anti-neoplastici
- Immunosoppressori

Servier Medical Art

Età e distribuzione per sesso dei pazienti in trattamento continuo con corticosteroidi per via orale

65.786 pazienti seguiti dal medico di medicina generale



Condizioni per le quali erano prescritti gli steroidi per via orale in 303 pazienti

Condizioni	N. di pazienti
Artrite reumatoide	70
Polimialgia reumatica	66
Asma o BPCO	59
Arterite temporale	17
Rettocolite	10
Altre malattie (n.11)	51

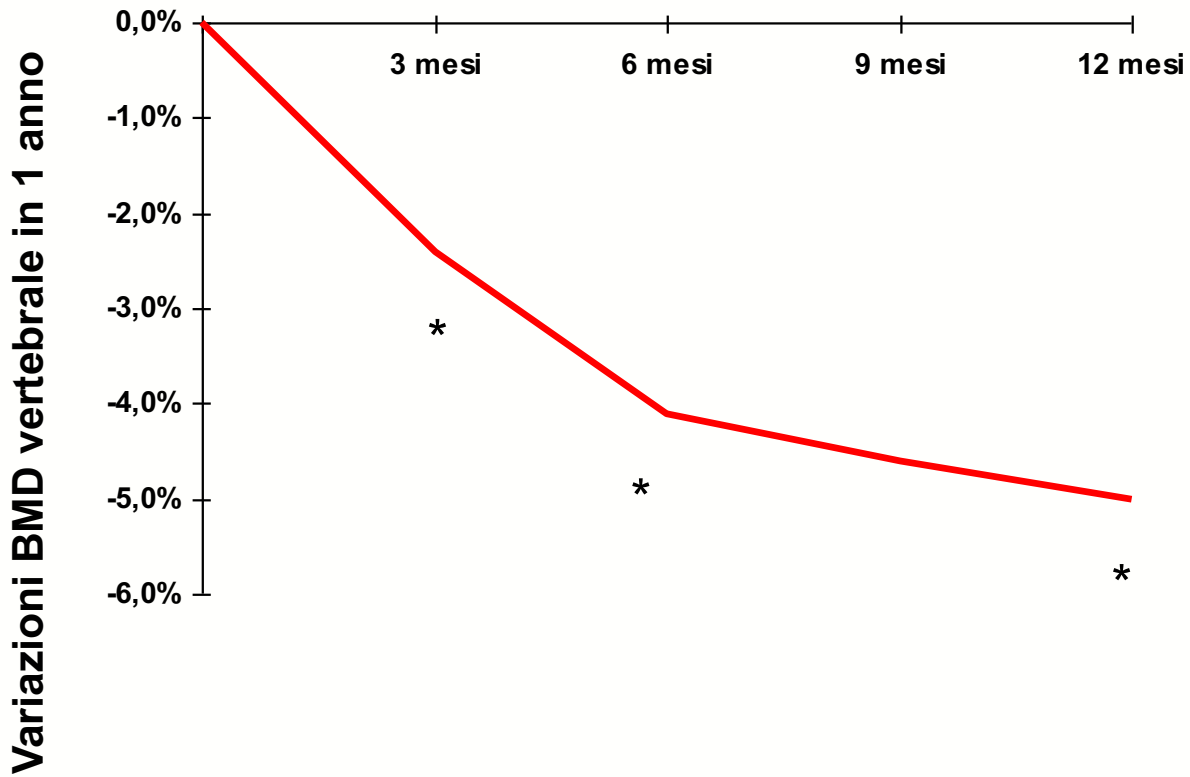
Prevalenza generale: 0.5 %
Prevalenza in donne in post-menopausa: 1.7 %

Walsh et al. *BMJ* 1996

Possibili effetti collaterali del trattamento a lungo termine con glucocorticoidi

- Aumento di peso, sindrome di Cushing
- Alterato bilancio idro-elettrolitico, ipertensione
- Diabete
- Miopatia
- Soppressione dell’asse ipotalamo-ipofisi-surrene
- Cataratta, glaucoma
- Ulcera peptica (in combinazione con FANS)
- Disturbi psichici o comportamentali
- **Osteoporosi e fratture**

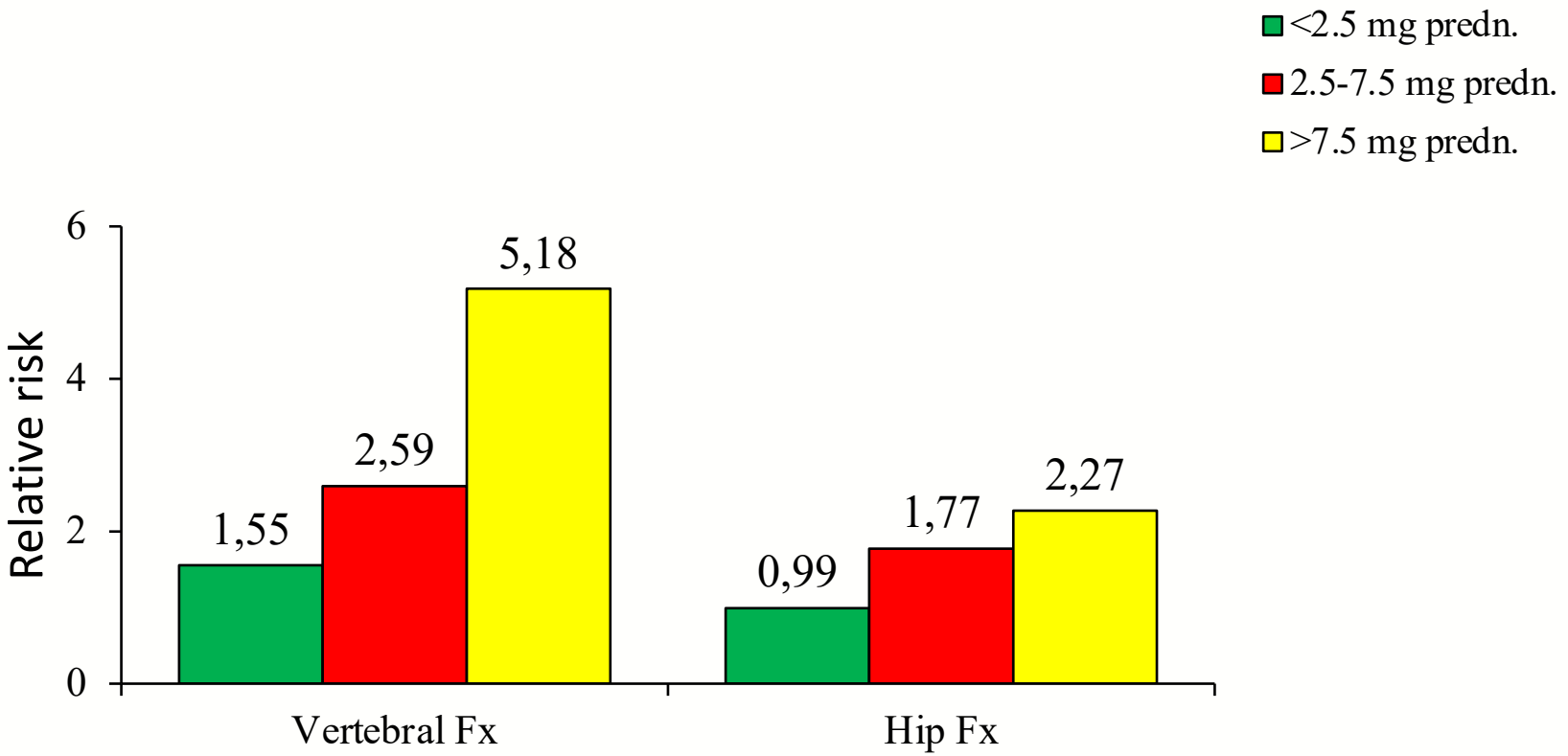
Effetti dei GC sulla bone mineral density



* p <0.01 vs. baseline

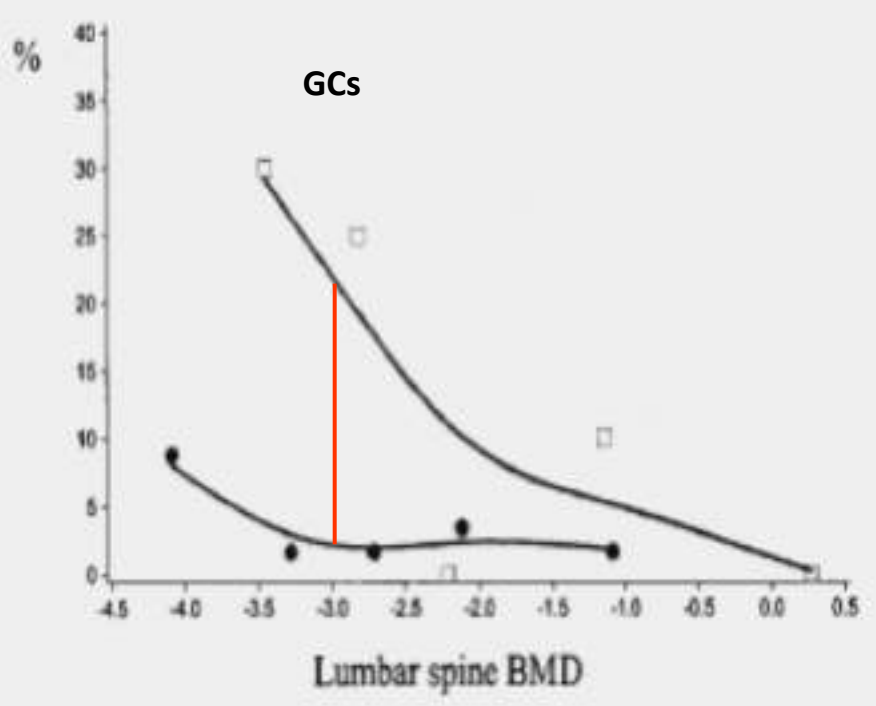
Adapted from Mulder H et al. British Journal of Rheumatology 1994; 33: 348-350.

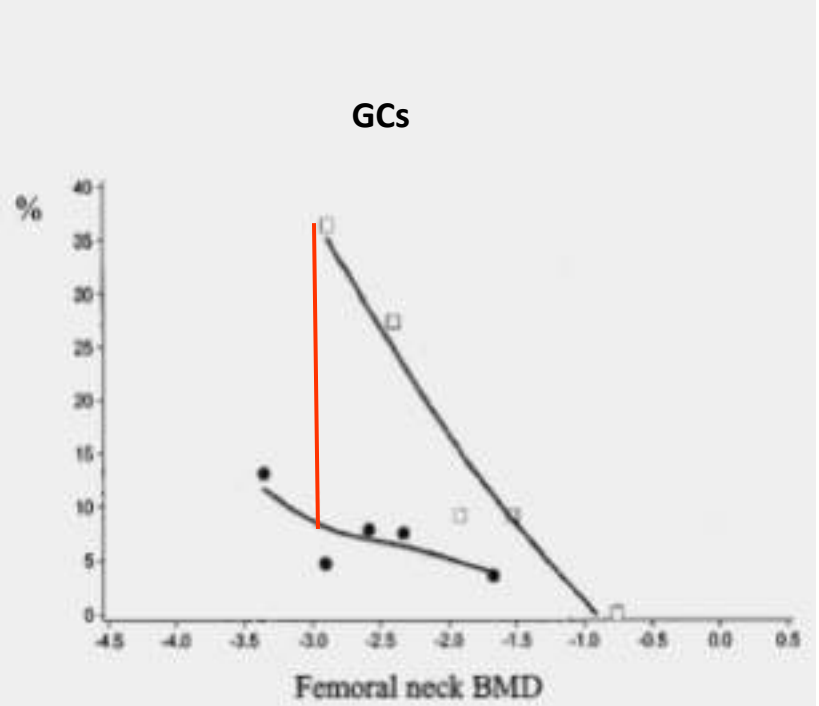
Rischio di frattura dose-dipendente



Van Staa TP et al. *JBMR* 2000

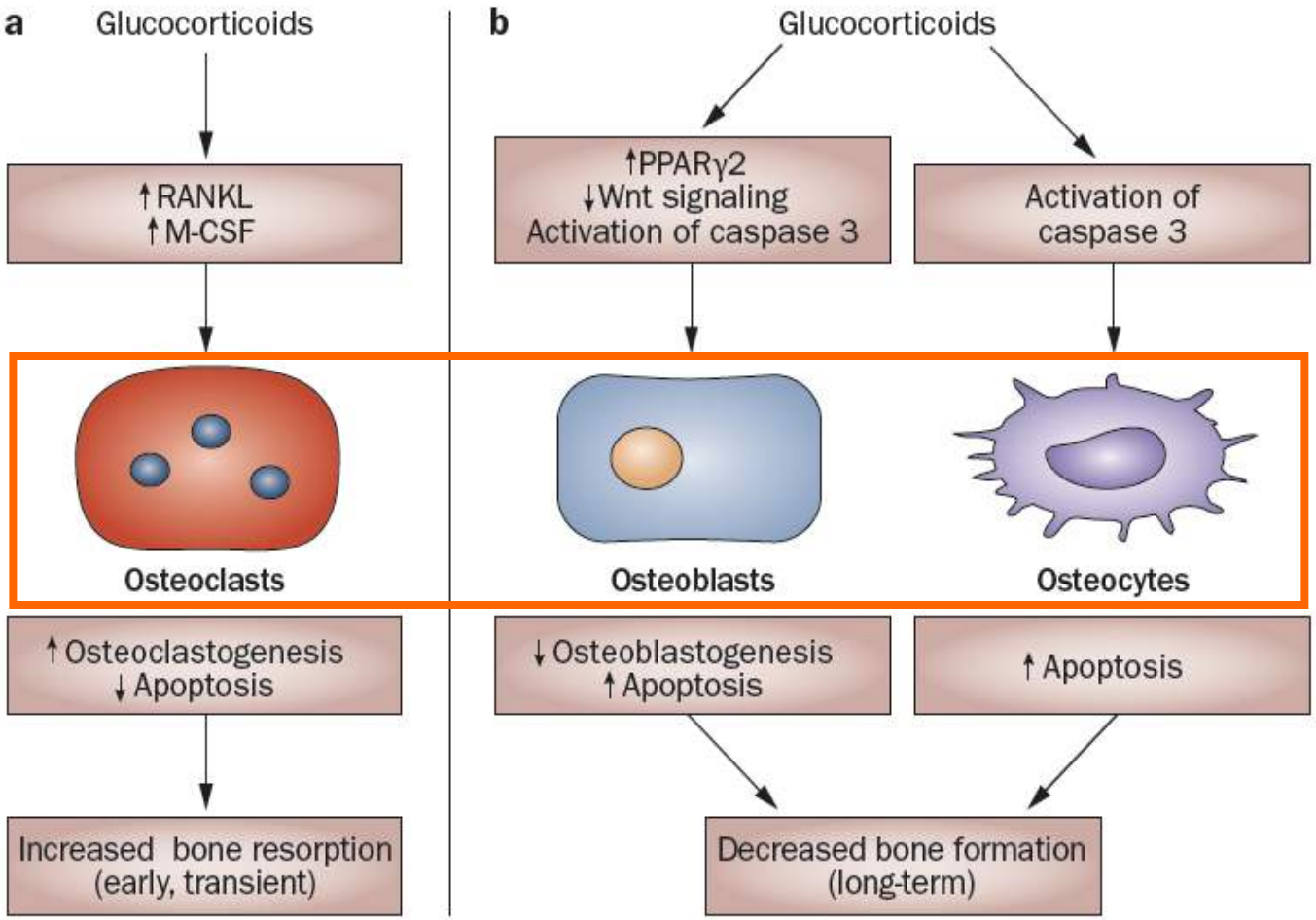
Incidenza di fratture vertebrali in pazienti in terapia steroidea





Van Staa TP et al. *Arthritis Rheum* 2003

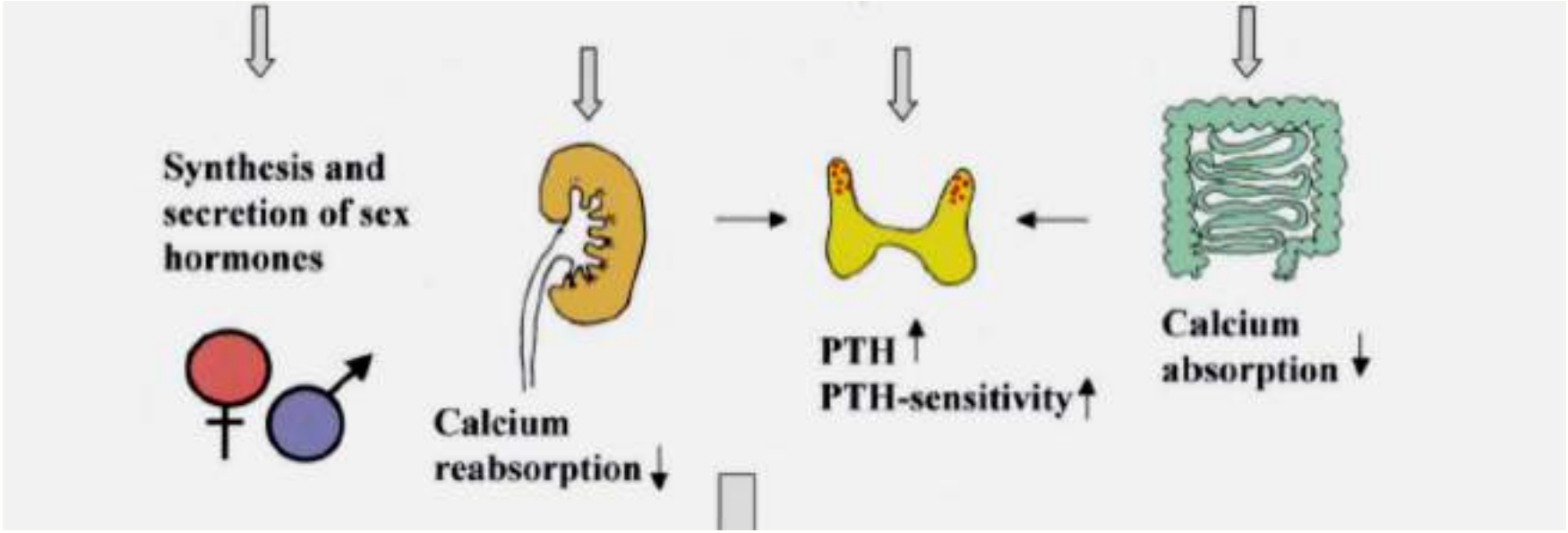
Effetti diretti dei glucocorticoidi sull'osso



Compston J *J Nat Rev Rheumatol* 2010

GLUCOCORTICOIDI

Effetti endocrino-metabolici



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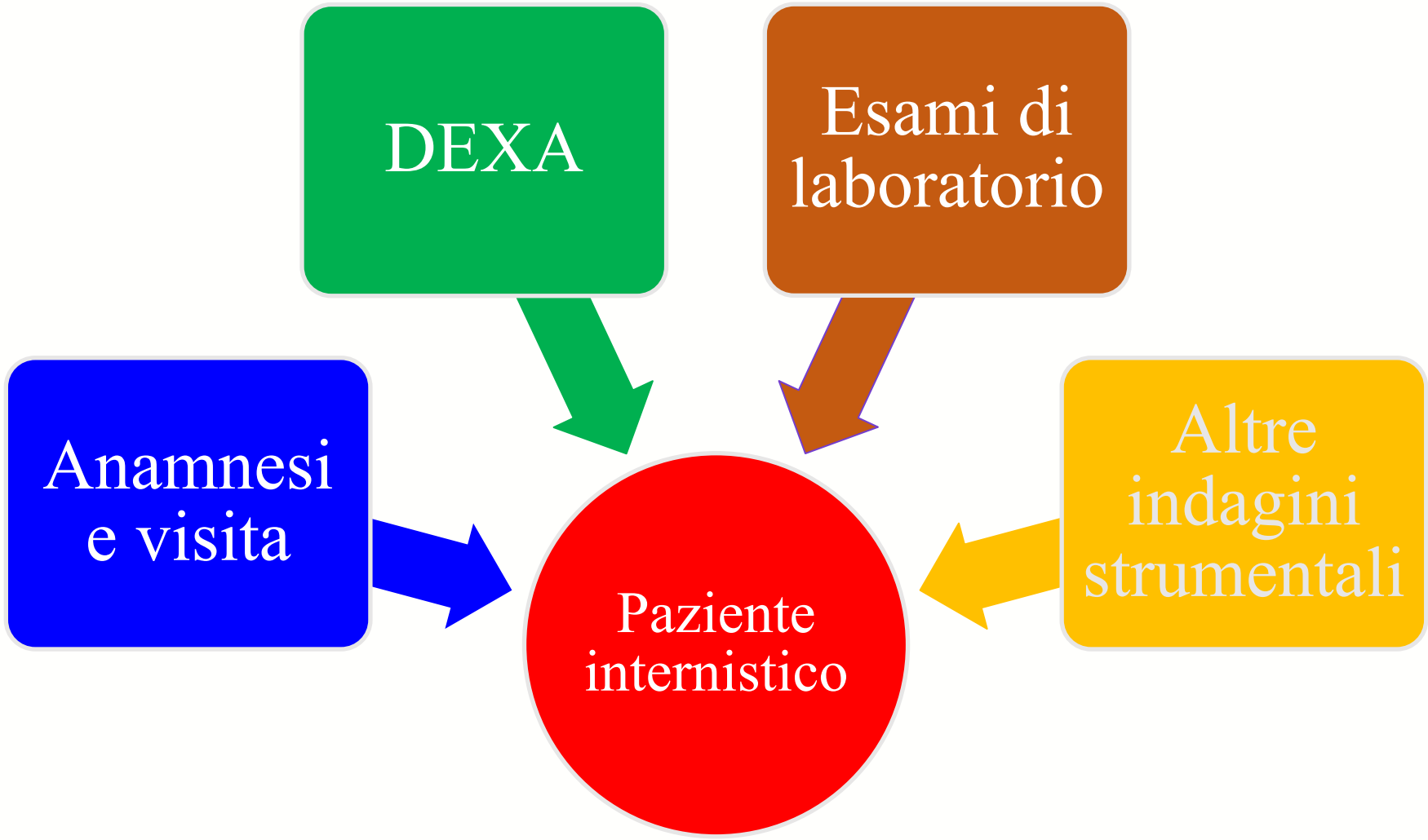
DEXA
Esami di laboratorio
Anamnesi e visita
Altre indagini strumentali
Paziente internistico

Conclusioni

- Il paziente internistico è un paziente complesso che necessita una visione olistica da parte del medico.
- La fragilità ossea spesso è considerata, anche nei reparti di Medicine Interna, un problema secondario e non sempre vengono attenzionate le patologie osteopenizzanti.
- Disponiamo degli strumenti per diagnosticare e trattare queste condizioni patologiche.
- La nota 79 permette di fare prevenzione primaria in molte forme di osteoporosi secondaria di natura internistica.

Grazie per l'attenzione