# OSTEOPOROSIS UPDATE - 2016

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Objectives:

1. Review incidence & Risk of Osteoporosis

2. Review indications for testing

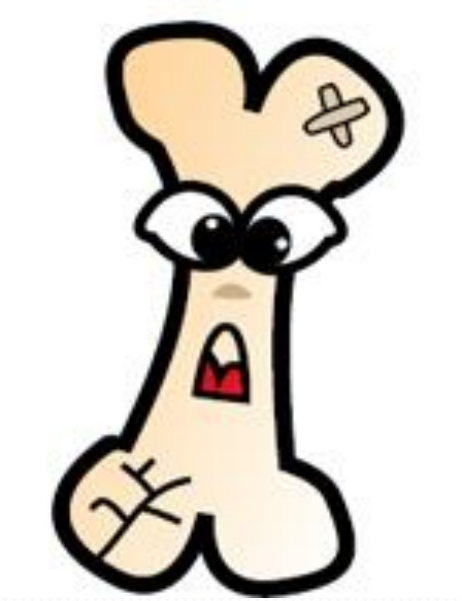
3. Review current pharmacologic & Non pharmacologic Tx options

4. Understand & Utilize FRAX score

Bone Density increases until age 25-30 years

Decreases 2-4% / yr for next 5-7 yrs

Then 1% / yr



BMD - measurement of bone density

DEXA – Dual Energy Xray Absortiometry

Peripheral DEXA – ie finger, wrist

Ultrasound of heel

Quantitative CT scan

Central DEXA is gold standard

# Osteoporosis Defined

2.5 standard deviations or more below mean peak BMD of young healthy adults

Reference: World Health Organization

# INCIDENCE OF OSTEOPOROSIS

Asymptomatic until fracture (HTN, CAD, CA, etc)

Number of OP fractures > Number of AMI, CVA, Breast CA combined

Lifetime risk for hip fractures in women > Incidence of CVA, DM2

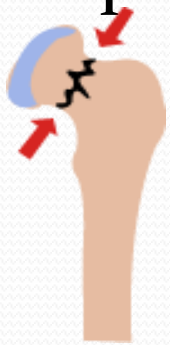
Ref: National Osteoporosis Foundation

# INCIDENCE OF OSTEOPOROSIS

Lifetime risk for hip fracture > Risk for Breast CA, Endometrial CA and Ovarian CA combined

Men: lifetime risk for hip fracture > Clinically significant Prostate CA

Approximately 50% of hip fractures in 80+ year olds are in MEN!



# RISK FACTORS

- AGE > 65 YRS ( see FRAX score)
- MATERNAL HISTORY OF HIP FRACTURES (FRAX)
- FALLS
- CAUCASIAN and ASIAN RACES
- LOW VITAMIN D

# RISK FACTORS

- STEROID USE ( see FRAX score )
- LOW CALCIUM DIET
- LACK OF WT BEARING EXERCISE
- HYPERTHYROID, HYPER PARATHYROID
- OVERACTIVE ADRENAL GLANDS

# RISK FACTORS

- LOW SEX HORMONES
  - WOMEN: menopause, breast CA treatments
  - MEN: Low Testosterone, prostate CA treatments

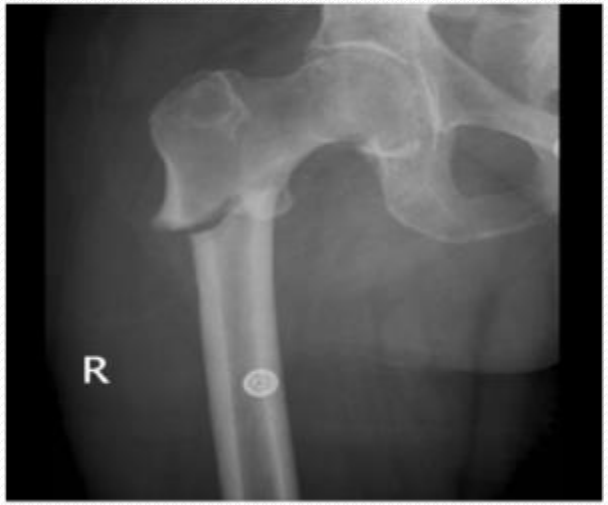
?? Good reason to measure and consider HRT or Hormone Optimization Therapy ??

# RISK FACTORS

- BARIATRIC or other GASTRIC SURGERIES
- CELIAC DISEASE
- INFLAM BOWEL DISEASE
- CKD
- RHEUMATOID ARTHRITIS ( see FRAX score )

# RISK FACTORS

- Tx is indicated if 10 year risk for hip fracture = 10% based on FRAX score
- 35% risk of OP fracture with more than 2 risk factors



# FRAX SCORE

- www.shef.ac.uk/FRAX

Trademarked WHO-sanctioned Fracture Risk Assessment Tool

Can be used free at this site under the “Calculation Tool” tab – calculates % risk based on 12 risk factors

# FRAX SCORE

- Will need patient's:  Age, Height, Weight and
- Femoral neck (or Total Hip) BMD

- Use if not sure should offer Tx or if patient is hesitant
  - Example:  Hip T score -2.0 and no H/O recent fracture

# WHO DO WE TREAT ?

- HEDIS data (Healthcare Effectiveness Data & Information Set)
- Only 22% of high risk pts >67 y/o with recent fracture received DEXA test or Rx for OP
- Most fractures occur in pts WITHOUT a Dx of OP based on BMD testing
  - Do any of us work in a nursing home??

History of fracture increases risk for future fractures

Important to prevent the first fracture!!

HOW ??

REFER TO ??

20% increased mortality in 1st year after fracture !!

similar to risk of 2nd MI in first year

# PREVENT FIRST FRACUTRE

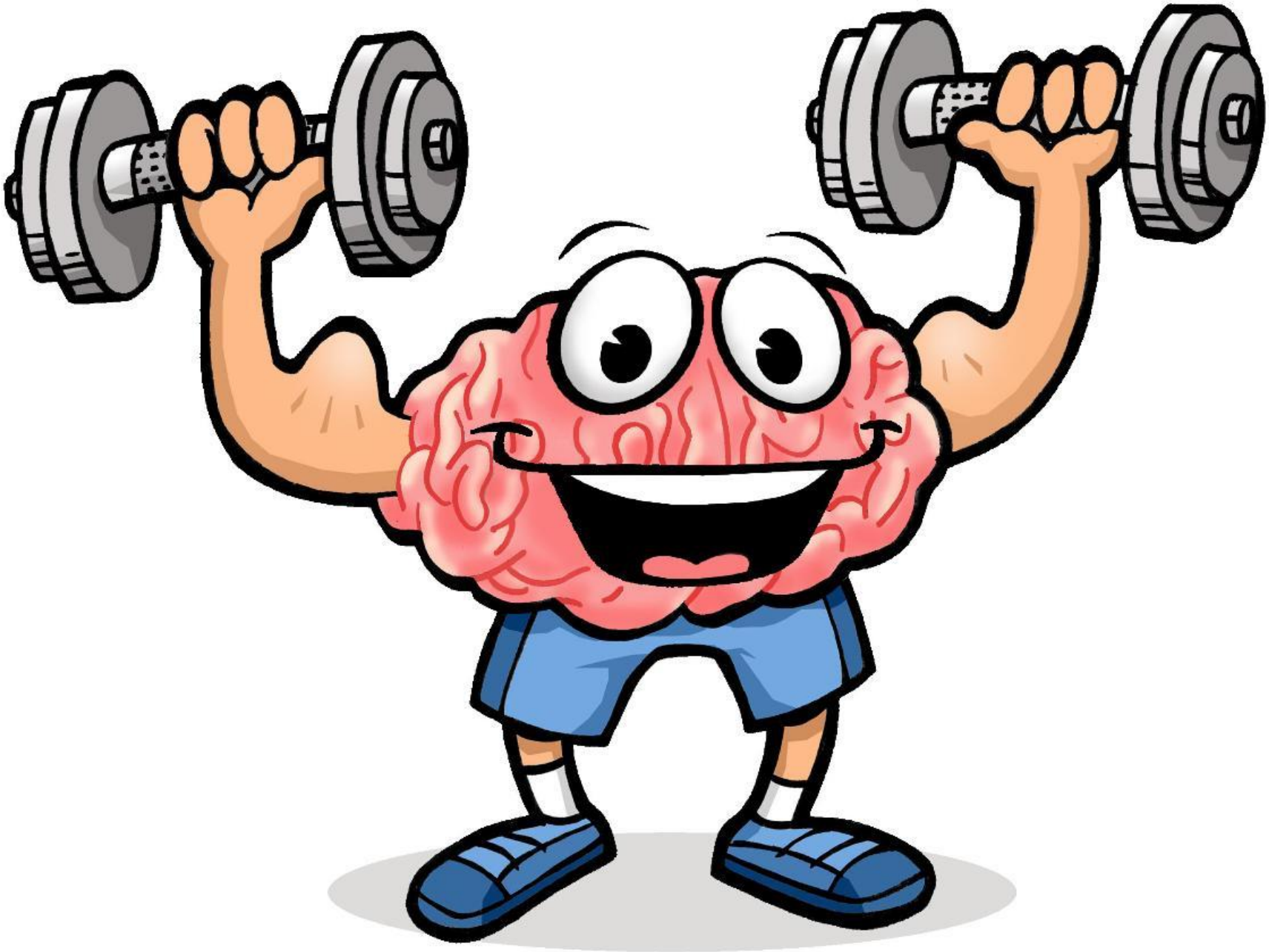
- HOME HEALTH AGENCY
  - PHYSICAL & OCCUPATIONAL THERAPY
    - F2F documentation; HCFA 485; 99___
  - BALANCE THERAPY
  - YOGA & TAI CHI

# TREAT ME !!

- Calcium: 1,000 – 1,200 mg daily
- Vitamin D: 600 – 4,000 IU daily

- Protein: 1 gram / kg body weight / day
  - Elderly, Vegans, Vegetarians may be at risk of low intake

  - 200 lb = 100 kg will need 100 gm protein DAILY
  - Whey and Soy



# TREAT ME !!

- EXERCISE
  - WEIGHT BEARING
  - 30 MINUTES 5 DAYS PER WEEK
  - BALANCE EXERCISES -
    - TAI CHI, YOGA

# MEDICATIONS

- ORAL BISPHOSPHONATES
  - BIPRODUCT OF DETERGENTS
  - POORLY ABSORBED
    - 50% OF PATIENTS DISREGARD INSTRUCTIONS
    - ABDOMINAL PAIN, GASTRITIS, GASTRIC ULCERS OSTEONECROSIS OF JAW
    - INEXPENSIVE COMPARED TO OTHER CHOICES

# MEDICATIONS

- NON INTRAVENOUS
  - PROLIA ( Denosumab ) – SC every 6 months
  - FORTEO ( Teriparatide ) - SC daily - limit 2 yrs
  - ESTROGEN REPLACEMENT – PO, Patch, Ring
  - TESTOSTERONE REPLACEMENT – gels, creams, IM
  - MIACALCIN ( CALCITONIN ) – intranasal daily

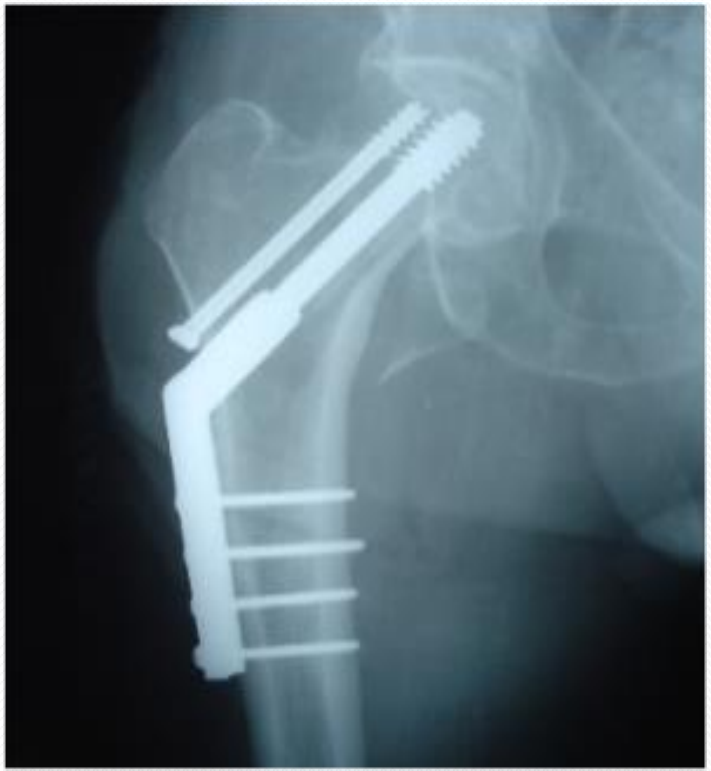
- INTRAVENOUS
  - RECLAST ( zoledronic acid ) – once per year
  - BONIVA (ibandronate ) – every 3 months

# INCREASE IN BMD OF SPINE

| | |
|---|---|
| Miacalicin | No significant increase |
| Evista ( raloxifene ) | 2% - 3% increase |
| Bisphosphonates | 5% - 6% increase |
| Reclast | 6.7% increase |
| Prolia | 8.8% increase |
| Forteo | 5% - 10% increase |

# Relative Risk Reduction for fracture

- 50% - 60% with all agents by 3 years
  - EXCEPTIONS = BONIVA and EVISTA showed no trend toward decrease in hip fractures



# A Few of My Favorites

# RECLAST

- Once yearly - 100% compliance
- 15 – 20 minute infusion in your office
- Highest reported reduction in fractures
- Contraindicated if CrCl < 35ml/min
- Up to 25% with post-infusion flu-like symptoms
- ONJ – Osteonecrosis of Jaw extremely rare
- Ensure adequate Vit D and Calcium intake
- Prior authorization may be difficult

# RECLAST

- Dose:  5 mg per year
- Cost:  $120.00 - $150.00 / yr
- Compare to Fosamax (alendronate)
  - 70mg per week x 52 wks = 3,640 mg per year
  - Cost with $25 co pay/month = $300.00 / yr
  - Cost with $50 co pay/month = $600.00 / yr

Actonel (risedronate)  35mg / wk =  1,820 mg / yr

150mg  / month = 1,800 mg / yr

# PROLIA

- MONOCLONAL ANTIBODY
- RANKL inhibitor - decreases Osteoclast activity in both cortical and trabecular bone
- 68% DECREASE in vertebral fractures (similar to Reclast)
- 40% DECREASE in hip fractures (similar to Reclast)
- SC injection every 6 months in office
- Can cause hypocalcemia especially if CrCl < 30ml/min, myalgias/arthralgias
- Prior auth easier than Reclast

# NOF
# Summary Recommendations

- The Journal of Clinical Endocrinology & Metabolism July 2008 Vol. 93, No. 7 2463-2465

- WWW.NOF.org requires membership for access to articles but has a lot of patient education material

# TABLE 1. Summary of the main recommendations in the NOF Guide for men and postmenopausal women age 50 yr and older

| Recommendations |
| --- |
| 1. Counsel on the risk of osteoporosis and related fractures. |
| 2. Check for secondary causes. |
| 3. Advise on adequate amounts of calcium (at least 1200 mg/d, including supplements if necessary) and vitamin D (800–000 IU/d of vitamin D for individuals at risk of insufficiency). |
| 4. Recommend regular weight-bearing and muscle-strengthening exercise to reduce the risk of falls and fractures. |
| 5. Advise avoidance of tobacco smoking and excessive alcohol intake. |
| 6. In women age 65 and older and men age 70 and older, recommend BMD testing. |
| 7. In postmenopausal women and men age 50–70, recommend BMD testing when you have concern based on their risk factor profile. |
| 8. Recommend BMD testing to those who have suffered a fracture, to determine degree of disease severity. |
| 9. Initiate treatment in those with hip or vertebral (clinical or morphometric) fractures. |
| 10. Initiate therapy in those with BMD T-scores ≤ –2.5 at the femoral neck, total hip, or spine by DXA, after appropriate evaluation. |
| 11. Initiate treatment in postmenopausal women and in men age 50 and older with low bone mass (T-score –1 to –2.5, osteopenia) at the femoral neck, total hip, or spine if 10-yr hip fracture probability is 3% or 10-yr major osteoporosis-related fracture probability is 20% based on the U.S.-adapted WHO absolute fracture risk model (FRAX; www.shef.ac.uk/FRAX). |
| 12. Current FDA-approved pharmacological options for osteoporosis prevention and/or treatment are bisphosphonates (alendronate, ibandronate, risedronate, and zoledronate), calcitonin, estrogens and/or hormone therapy, raloxifene, and PTH 1–34. |
| 13. BMD testing performed in DXA centers using accepted quality assurance measures is appropriate for monitoring bone loss. For patients on pharmacotherapy, it is typically performed 2 yr after initiating therapy and every 2 yr thereafter; however, testing after 1 yr may be warranted in certain clinical situations. |

# NOF SUMMARY RECOMMENDATIONS FOR MEN & WOMEN OVER 50 YRS OF AGE

- 1. Counsel on risk of Osteoporosis
- 2. Check for Secondary causes
- 3. Advise adequate Ca+ / Vit D intake
- 4. Exercise: weight-bearing and balance
- 5. Advise stop smoking, limit alcohol
- 6. DEXA: Women > 65; Men > 70
- 7. DEXA at younger age if increased risk

# NOF SUMMARY RECOMMENDATIONS FOR MEN & WOMEN OVER 50 YRS OF AGE

- 8. DEXA after first fracture (wrist, ankle, … )
- 9. Initiate Tx in those with hip or vertebral fracture
- 10. Tx if BMD < -2.5 hip or spine by DEXA
- 11. Tx in postmenopausal Women or in Men age 50-70
  - If BMD is -1 to -2.5 at hip or spine
  - Or if FRAX score is > 20%

# LAST WORDS

- DEXA – Every TWO yrs to monitor Tx
- Consider drug holiday if BMD stabilizes after taking Bisphosphonates for several yrs.
  - Repeat DEXA in 1-2 yrs and resume Tx if BMD decreasing