

METABOLIC BONE DISEASE

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BONES AND SPINE

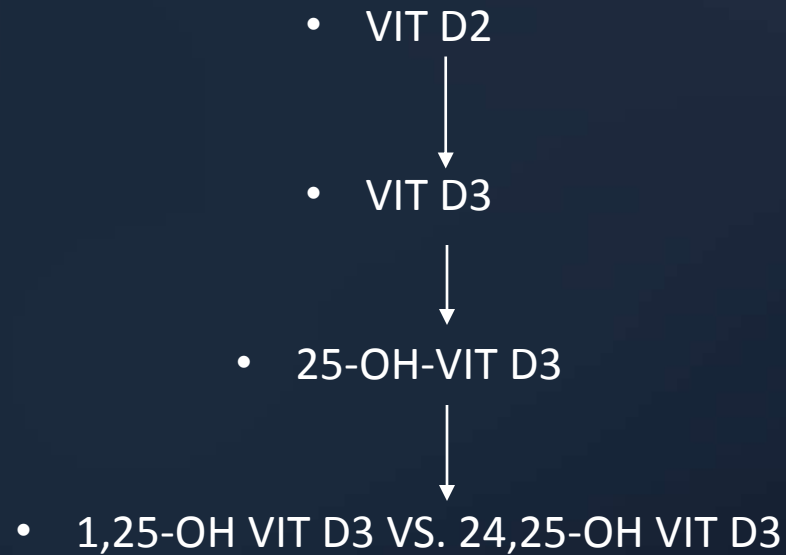


OSTEOPENIA

- OSTEOPOROSIS

- OSTEOMALACIA

VITAMINE D PRODUCTION



OSTEOMALACIA- CLINICAL PRESENTATION

- Diffuse pain (away from joints)
- Muscle weakness (waddling gait)
- Hx of prior fx (rib/spine/long bone)

OSTEOMALACIA X-RAY IN ADULTS

- Code fish vertebrae
- Looser Zone

OSTEOMALACIA- LAB.

- Ca, P, Akp, PTH, 25-vit D, 1,25-Vit D

OSTEOMALACIA – LAB.

<u>DISEASE</u>	<u>CA</u>	<u>P</u>	<u>Akp</u>	<u>PTH</u>
Vit.D Dep. Ricket	L	L	H	H
VDRR (hypophosphotemic Ricket) * x link dominant	NI	L	H	N
Renal osteodystrophy	H	H	H	H
Hypophosphatasia *AR	nl	nl	L	nl
hyperparathyroid	H	L	H	H
Idiopathic Juvenil osteop.	nl	nl	nl	nl

OSTEOMALACIA-TREATMENT

- Find the cause and treat it.

OSTEOPOROSIS

<u>type</u>	<u>I</u>	<u>II</u>
Cause	postmenopause	age
age	51-70	>70
F : M	6:1	2:1
Bone loss	trabeculae	Trabeculae+corticle
Fx sites	Crushed vert. IT fx, wrist	Wedge vert. Femoral neck.

OSTEOPOROSIS - HISTORY

- Menopause
- Periods of amenorrhea
- Nutrition
- Inactivity
- Smoking
- alcohol

OSTEOPOROSIS-LAB

- CBC,ESR,CHEM20, SPEP,TSH,PTH

OSTEOPOROSIS - IMAGING

- DXA(Dual-energy x-ray absorptiometry)
- Classification I to IV levels (compare to peak bone mass of young same gender)
- Two fold increase of Fx. Rate with each standard deviation.

OSTEOPOROSIS-TREATMENT

- CALCIUM
 - Young adult = 1200 Mg/day
 - Premenopause = 1000 Mg/day
 - Postmenopause = 1500 Mg/day

OSTEOPOROSIS-TREATMENT

- VIT D
 - 400 IU/DAY
 - 800 IU/DAY MAX.

OSTEOPOROSIS-TREATMENT

- ESTROGEN
 - 0.625 MG/DAY
 - Contraindication:
 - Breast Cancer
 - Uterine Cancer
 - Thromboembolic disorders
 - Raloxifene(selective estrogen-receptor modulator) 60mg/day

OSTEOPOROSIS - TREATMENT

- Bisphosphonates
 - 1st generation: Etidronate
 - 2nd generation: Alendronate
 - 5mg/day prevention
 - 10mg/day treatment
 - Instruction and side effects.
 - 3rd generation: Risedronate

OSTEOPOROSIS TREATMENT

- Calcitonin
 - Salmon 200 IU/day
 - Has both analgesic and protective effects

OSTEOPOROSIS TREATMENT

- Fluoride
 - Increase bone formation but impair bone mineralization. (May increase bone density but increase rate of fractures)

OSTEOPOROSIS TX. PROTOCOL

- Premenopause
 - Eumenorrheic
 - Ca 1000., Vit D 400, exercise
 - Amenorrheic
 - Above + estrogen or ocp

OSTEOPOROSIS TX. PROTOCOL

- Postmenopause
 - BMD <2.5
 - Ca 1500, Vit D. 400, estrogen
 - BMD >2.5 or fracture
 - Above + calcitonin

CONCLUSION

- Best treatment of osteoporosis is prevention.
- Best treatment of osteomalacia is to treat the cause.