Osteoporosis

A systemic skeletal disease characterised by low bone mass and microarchitectural deterioration of bone tissue with subsequent increased risk of fracture.

World Health Organisation
Epidemiology of Osteoporosis

• 20 000 fractures / year in UK
• Cost to NHS over £940 million
• Increased mortality and morbidity
  • Early mortality with hip #
  • Late mortality with vertebral #
Histology
Radiographic Changes
Fracture Sites

- Wrist
  - ↑ risk >55y

- Vertebral
  - ↑ risk >60y

- Hip
  - ↑ risk >65-70
Risk factors

• Postmenopausal women
• Corticosteroids
• Other medical problems
  • Inflammatory arthritis
  • Inflammatory bowel disease
  • Hyperthyroidism
  • Malignancy
• Family history esp maternal hip #
Risk factors

- **Lifestyle Factors**
  - Smoking
  - Alcohol
  - Low Body Mass Index <18
  - Poor diet
  - Lack of exercise
How to Measure Bone Density

• DEXA scan gold standard
• Compares patient value to mean expected peak bone mass.
• Population data from white Caucasian women
• T score = number of standard deviations from peak bone mass
DEXA and Osteoporosis

• T score between 0 and -1.0
  • NORMAL

• T score between -1.0 and -2.5
  • OSTEOPENIA

• T score less than -2.5
  • OSTEOPOROSIS
• Is a DEXA compulsory to diagnose osteoporosis?
Case History 1

• A 55 year old woman.
  • Postmenopausal
  • Colles #
  • T score Hip -1.4
  • T score L spine -1.0
  • Otherwise well
  • Not on other treatment
Case History 2

• 65 year old woman
  • Postmenopausal
  • Vertebral #
  • Rheumatoid arthritis
  • Prednisolone 10mg
  • T score Hip -3.0
  • T score L spine -3.0
Case History 3

• 35 year old woman
  • Premenopausal
  • Family history
  • No #
  • T score Hip -1.5
  • T score L spine -2.0
  • Otherwise well
Case History 4

• 35 year old woman
  • Hysterectomy and oophorectomy 10 y ago
  • On HRT only last 2 years
  • No #
  • T score hip -3.0
  • T score L spine -3.5
Treatment

• Aim to reduce fracture risk

• Increasing BMD as measured by DEXA may not equate totally with this!
Non-Pharmacological

• Lifestyle alterations
  • Smoking
  • Alcohol
  • Diet
  • weight bearing exercise

• Fall reduction
Calcium/Vitamin D

• Should be given to all if intake thought to be low.

• Poor use as a sole agent apart from frail elderly.
  • ? treating subclinical osteomalacia
HRT

- Most evidence from observational data
- 1 RCT showed effect on non-vertebral # risk reduction.
- Beneficial effect ceases on stopping Rx
- Worries about breast cancer/CVS mortality
Alendronate

• Prevention and Rx/SIOP
• 10mg daily
• Fracture Intervention Trial
  • Increases in BMD
  • Reduction in vertebral #
• Problems with GI side effects
• New equivalent weekly preparation
Risedronate

- Prevention/Rx/SIOP
- 5mg OD
- RR of new vert # 0.35 after 1y, 0.59 at 3y
- RR of non-vert # at 3 y 0.6
- Significant increases in BMD
- “Placebo” incidence of GI side effects
Raloxifene

- Prevention/Rx
- BMD increases 2-3%
- RR of vert # 0.7
- No effect on hip# risk
- ? reduced risk of breast cancer
- Thromboembolism risk
How to treat Case 1?

• Lifestyle advice

• Ca/Vit D

• Raloxifene
How to treat Case 2

- Lifestyle
- Ca/Vit D
- Bisphosphonate
- Risedronate if fast risk reduction preferred
- ↓ prednisolone to lowest possible dose
How to treat Case 3

• Lifestyle
• Ca/Vit D
• NO BISPHOSPHONATES
How to treat Case 4

- Lifestyle
- Ca/Vit D
- Calcitriol?
- Continue HRT?
- Bisphosphonate?
  - No uterus/ovaries
  - Young
  - absolute # risk low
Conclusion

• Osteoporosis a major health problem
• Ageing population
• Better patient awareness
• Better treatments
• Guidelines
  • www.rcplondon.ac.uk
Treatment Options

• Premenopausal
  • Lifestyle
  • ca/vit D
  • ?bisphosphonates

• Postmenopausal
  • ?HRT for symptoms
  • SERM for 5-10 years then bisphosphonate
Osteoarthritis
Introduction

• Chronic degenerative disorder
• loss of articular cartilage
• most prevalent disease in society
• In England and Wales, 1.3-1.75M people affected
Features

• Over 50
• pain and stiffness
• swelling
• disability
Risk factors

• Age
• Trauma
• Occupation esp kneeling, bending
• gender
  • men>women under 50
  • women>men over 50
• obesity
Case 1

• 65 year old man
• symptomatic knee OA
• on aspirin
• no response to paracetamol
Management

• Non-drug
  • exercise
  • weigt loss
  • mechanical aids

• Drugs
  • simple analgesia
  • NSAIDs
  • ? COX-2 drugs
Management

• Intra-articular steroids
• Hyaluronic acid derivatives
• Glucosamine sulphate
  • analgesic ?disease modifier
• Surgery
  • arthrodesis
  • arthroplasty
  • washouts
Case 1

- 25 year old legal secretary
- 1 year worsening pain both arms and pins and needles in hands
- difficult to work
- anxious
- Little to find on examination
  - Neuro normal
  - Slight lateral epicondyle tenderness
  - Neck ok. trapezius tender
The workplace and upper limb pain

• Numbness/tingling in the hands very common. Prevalence ~33%

• Several causes
  • Cervical root entrapment
  • peripheral nerve entrapment
  • WORK!
History

• Symptoms
• relation to work
• relation to rest eg holidays
• psychosocial issues
Workplace ergonomics

• Sensible advice, but little/no evidence!

• Details:
  apple.com/about/ergonomics/index.html
Examination

• Neck
• Neurological examination
• Tests for adverse neural tension
• Carpal tunnel
  • ↑ risk if repeated finger/wrist movements
  • bending/straightening of elbow
  • carrying>5kg in one hand
• Posture
Solutions

• Workplace ergonomics
• Treat carpal tunnel
• Posture advice
• Physio for adverse neural tension
• restrict time at desk
• Exercise!
• ? C Spine X Ray to exclude pathology