Osteoporosis

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

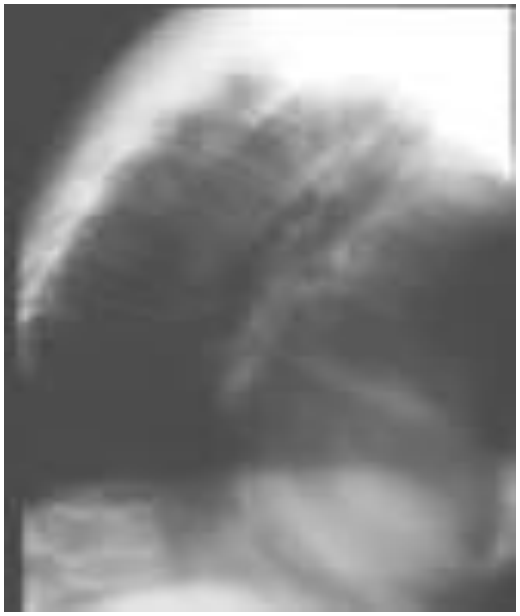
World Health Organisation

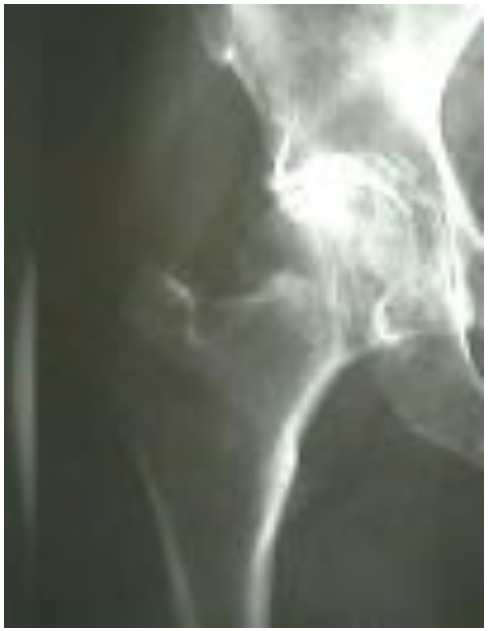
Epidemiology of Osteoporosis

- 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
- Tscore 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 bresat 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 preferrred
- ↓ 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

Tratment 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

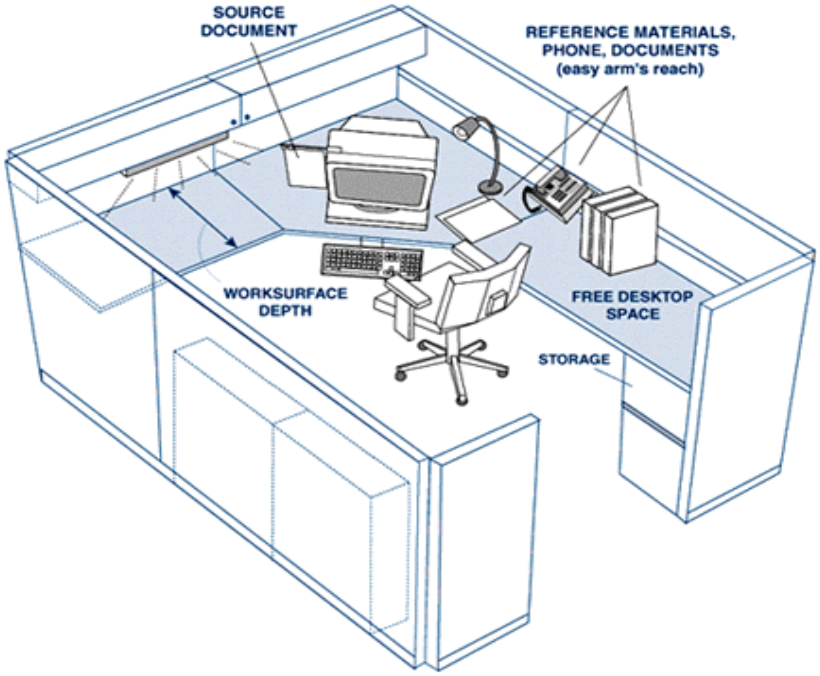
- Symptoms
- relation to work
- relation to rest eg holidays
- psychosocial issues

Workplace ergonomics

- Sensible advice, but little/no evidence!

- Details: apple.com/about/ergonomics/index.html


18" - 24"


SOURCE DOCUMENT
REFERENCE MATERIALS, PHONE, DOCUMENTS (easy arm's reach)
WORKSURFACE DEPTH
FREE DESKTOP SPACE
STORAGE

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