Blood tests in Rheumatology
The why when and what to do next!

Introduction

- Think of some blood tests used in rheumatology
- Blood count/biochemistry
- ESR/C-reactive protein
- Autoantibodies!
    - antinuclear
    - rheumatoid factor
    - extractable nuclear

Routine tests

- Blood count
  - anaemia
  - raised/low white count
  - raised platelets
  - low platelets
- Biochemistry
  - renal impairment
  - calcium abnormalities
  - raised alkaline phosphatase
  - uric acid

Uric Acid

- Levels raised in
  - drugs eg diuretics
  - increased cell turnover eg lymphoma
  - renal failure
- Raised levels associated with
  - hypertension
  - Hyperlipidaemia

Raised urate and no symptoms = gout?

- Not necessarily!
- Look for risk factors
    - diet/drugs
- Not necessary to treat unless worried re: uric acid stones

How to treat

- Acute attack
  - NSAID
  - ? colchicine
  - IM depomedrone for polyarticular disease
  - Intra-articular steroid
  - Diet advice etc
- Recurrent attacks
  - Add allopurinol

Do I have to get proof with crystals?

- No
- If history and examination classic then treat
- need fluid if worries about sepsis or polyarticular joint involvement
- Realistically can only get fluid from knee

Inflammatory markers

- ESR
- Plasma Viscosity
- C-reactive protein

Why do we order them?

- **“Sickness index”**
- **Diagnosis**
- **Monitoring of disease activity**

ESR:Normal ranges

- **Adults <50 range (mm/hr)**
- Male 0-15
- Female 0-20

- **Adults > 50**
- Male 0-20
- Female 0-30

Causes of a raised ESR

- Old age
- Female
- Pregnancy
- Anemia
- Red blood cell abnormalities
- Macrocytosis
- Technical factors
    - Dilutional problem
    - Increased temperature of specimen
    - Tilted ESR tube
- Elevated fibrinogen level
    - Infection
    - Inflammation
    - Malignancy

Renal Failure

Diabetes mellitus

Advantages and Disadvantages of ESR, CRP and PV

Test	Advantages	Disadvantages
ESR	Cheap Quick	Non specific Affected by many factors
CRP	Rapid response to inflammation	Expensive
PV	Not affected by haematocrit or red cell size	Expensive Not widely available, technically more difficult

Using the ESR

- “Sickness Index”
- Diagnosis
    - Polymyalgia rheumatica/temporal arteritis
    - Low false positive rate if ESR >100mm/hr
        - Inflammatory disease
        - Malignancy
        - Infection
- Monitoring
    - Response to therapy

How to manage a raised ESR

- Recheck
- Follow up significant symptoms or signs
- Infection
    - Urinalysis
    - CXR
- Malignancy
    - CXR
    - Protein electrophoresis
- Autoantibodies if appropriate

Conclusion

Acute phase markers non-specific

Use in conjunction with symptoms and signs.

Normal ESR/CRP does not rule out disease

Autoantibodies

- Who needs an autoantibody screen?
- Those with suspicious symptoms or signs!
- Can cause more trouble than they are worth!
- Can be positive in healthy people

Rheumatoid factor (RhF)

- 80% of patients with RA
- Also positive in lupus, Sjogren's syndrome
- A result of 1/40 is not significant
- 1/80 and more may be significant but ONLY in conjunction with history and examination

Antinuclear antibodies (ANA)

- Positive in nearly all lupus patients
- Also in RA, sjogren's and myositis
- Less than 1/100 prob not significant
- Again, only do if there are suspicious symptoms and signs

What tests?

- Simple back pain
- Sciatica
- Red flag back pain
- Fibromyalgia
- Osteoarthritis
- Hot swollen joint
- Hot swollen multiple joints
- Dry eyes/mouth/fatigue/raynauds

- Simple back pain/ sciatica/osteoarthritis
  - no blood tests
- Red flag back pain
  - ESR
  - blood count
  - biochemistry
- Fibromyalgia
  - Theory - no tests
  - reality - all these tests discussed!
- Hot swollen joint
  - ESR /blood count / urate
  - Rh factor?

- multiple hot joints
    - ESR/blood count/biochemistry
    - Rh factor
- symptoms of connective tissue disease
    - Above plus ANA

Case history 1

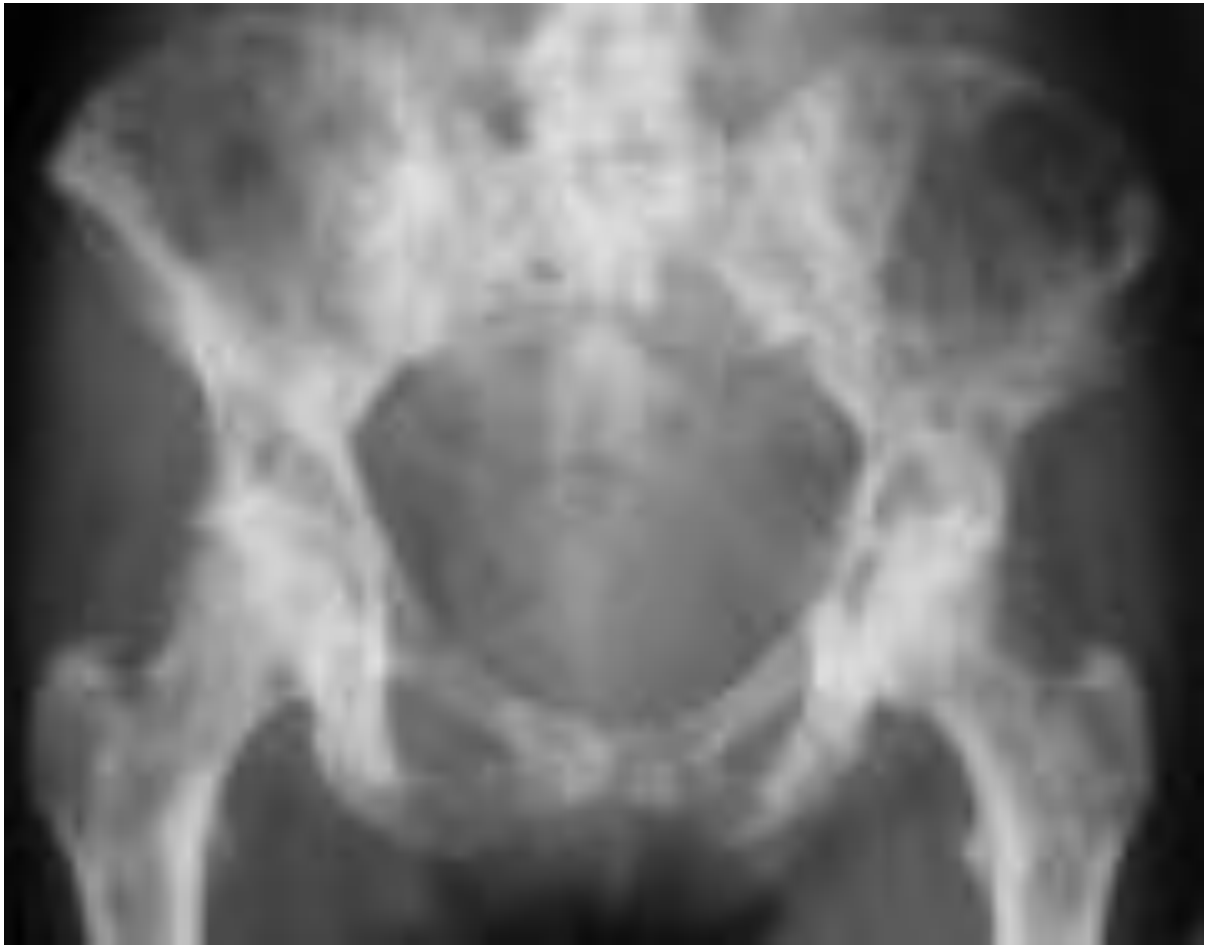
- 67 year old woman
- 7- day history severe headache
- unilateral, pain on brushing hair
- blurred vision
- Diagnosis: Temporal arteritis
- Tests: blood count/ESR/CRP
- Treatment: Hi dose prednisolone 60mg ASAP

Case History 2

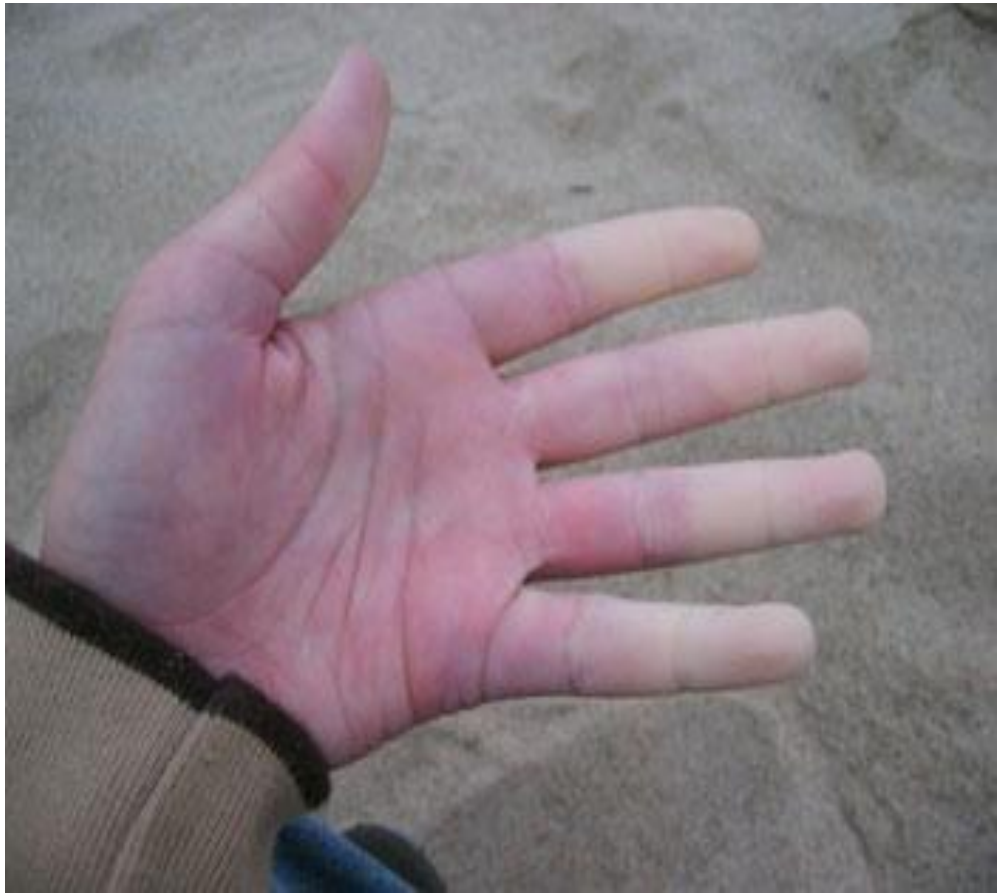
- 28 year old woman
- 10 years of joint pain knees and hands
- worse when typing
- nothing to find on examination
- possible carpal tunnel syndrome
- tests: none

Case history 3

- 67 year old man
- worsening back and hip pain
- night pain
- weight loss
- tests: blood count/biochem/ESR/myeloma screen/PSA



Case History 4



ANA/blood count/ESR