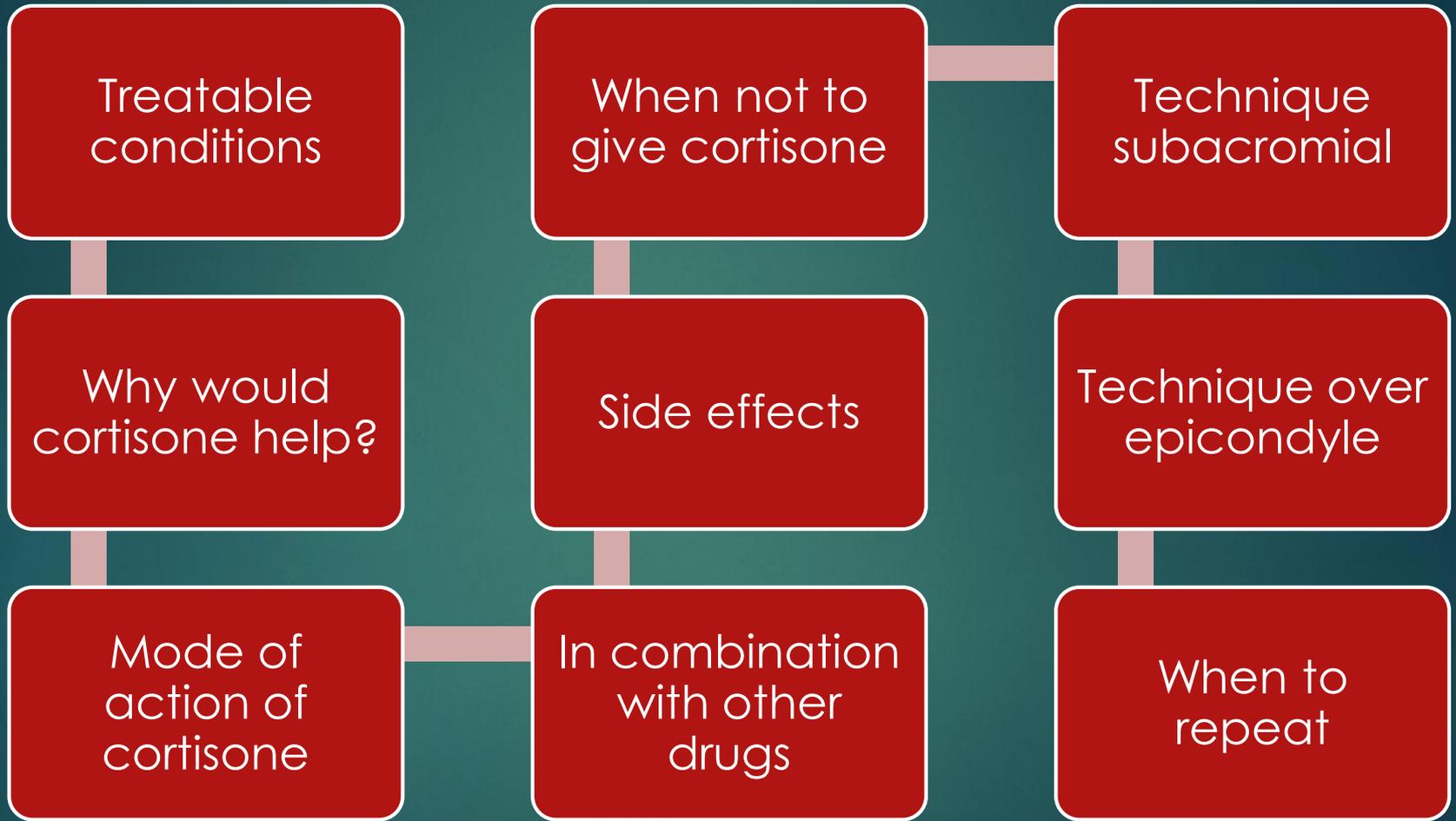




Extra-articular cortisone

TREATMENT OF THE ELBOW AND SHOULDER



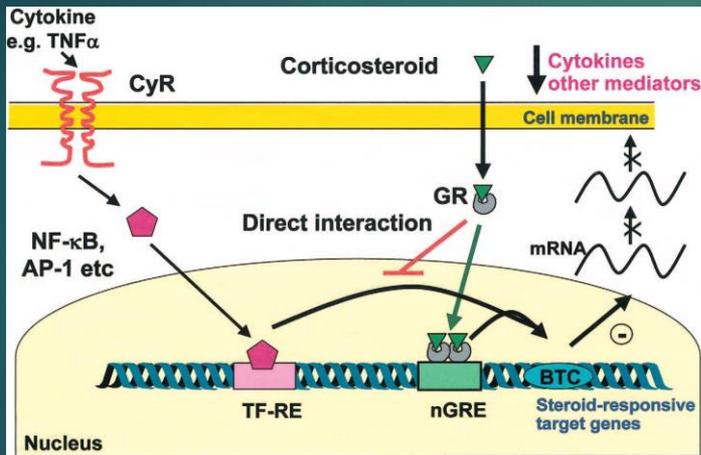
Extra-articular conditions treatable with cortisone

- ▶ Inflammation in
 - ▶ Bursa
 - ▶ Tendon
 - ▶ Fascia
 - ▶ Tendon sheath

Inflammation

- ▶ Physical or chemical event
- ▶ Localised protective response
- ▶ Dilated blood vessels
- ▶ Increased blood flow
- ▶ Increased capillary permeability
- ▶ Leukocyte exudation

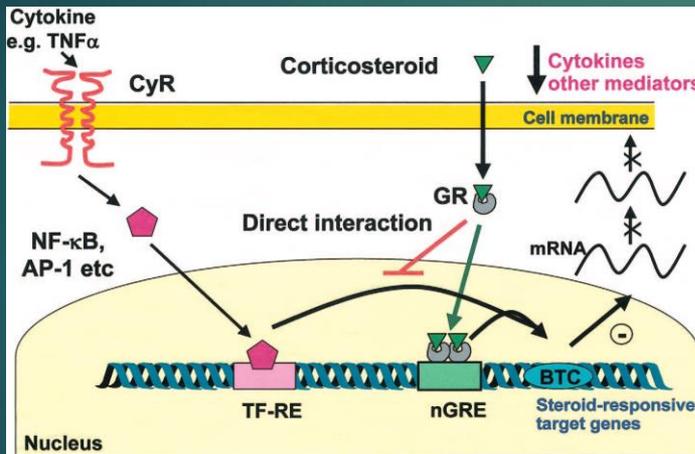
Inflammation on cellular level



- ▶ Inflammatory mediators produced by damaged cells
- ▶ Inflammatory genes are activated by mediators
- ▶ Activation of the transcription factors
- ▶ Stimulate transcription of inflammatory genes
- ▶ Production of more mediators

Mode of action of cortisone

- ▶ Glucocorticoid binds to receptor
- ▶ Receptor interact and block effect of transcribing factors
- ▶ Bind to promotor of inflammatory genes in DNA thereby inhibiting it's action



In combination with other drugs

- ▶ Multiple targets in inflammation cascade
- ▶ Cortisone as described
- ▶ NSAIDs blocking action of COX enzyme in inflammatory cascade
 - ▶ COX-1 and COX-2
 - ▶ Reduction of pro-inflammatory metabolites
 - ▶ prostaglandin E₂

Inflammation in subacromial area - serous

- ▶ Mechanical stimulus
 - ▶ Acute injury
 - ▶ Compression of cuff/bursa
 - ▶ Muscle jerk effect on tendon
 - ▶ Chronic
 - ▶ Impingement
- ▶ Chemical stimulus
 - ▶ Calcific tendinitis
 - ▶ Gout crystal deposits

Inflammation in subacromial area - serous

- ▶ Bursitis
- ▶ Impingement
 - ▶ Stage 1
 - ▶ Inflammation
 - ▶ Stage 2
 - ▶ Tendinosis
 - ▶ Stage 3
 - ▶ Tendon tear
- ▶ Calcific tendinitis

Why would cortisone help?

- ▶ Reduce inflammation
- ▶ Eliminate pain inhibition of cuff
- ▶ Cuff opposes superior force of deltoid on humeral head
- ▶ Centres head in glenoid and reduces tendency to impinge
- ▶ Reduce swelling of bursal tissue and tendon
- ▶ Restore volume of subacromial tissue relative to space available for sliding under acromion

Side effects

- ▶ Acts on gene expression and subsequently protein syntheses

Side effects - Literature review over 54 years

▶ Serious – 0-5.8%

- ▶ Osteomyelitis
- ▶ Necrotising fasciitis
- ▶ Cellulitis
- ▶ Ecchymosis
- ▶ Tendon/fascial rupture
- ▶ Atrophy sub cut fat
- ▶ Skin hypopigmentation
- ▶ 1 fatality

▶ Transient 0-81%

- ▶ Skin rash
- ▶ Flush
- ▶ Change in menstrual cycle
- ▶ Flare
- ▶ Soft tissue calcification

When not to inject cortisone

- ▶ Uncontrolled diabetes mellitus
- ▶ Presence of infection
- ▶ Tendon rupture suspected/confirmed
- ▶ Multiple previous cortisone infiltrations in same area

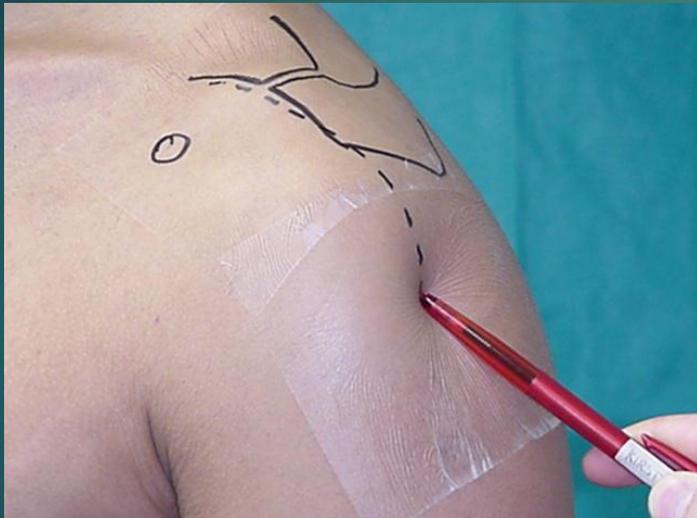
Who will find benefit?

- ▶ Subacromial bursitis
- ▶ Stage 1 rotator cuff syndrome (tendinitis)
- ▶ Extensor/flexor origin tendinitis at elbow
- ▶ Sinovitis acromioclavicular joint

What stage is the condition in?

- ▶ Rotator cuff syndrome age 25 – 45
- ▶ Duration of symptoms < 3 months
- ▶ Episodes of pain
- ▶ Calcific deposits in tendon
- ▶ Tear absent on ultrasound

Technique subacromial



1. Aim for anterolateral tip of acromion
2. Strike bone
3. Pull back ± 7 mm
4. Advance in original line but deep to acromion
5. Can skip step 2 and 3 but aim to avoid rotator cuff

Technique over epicondyle

- ▶ Deep to subcutaneous fat
- ▶ Superficial to aponeurosis

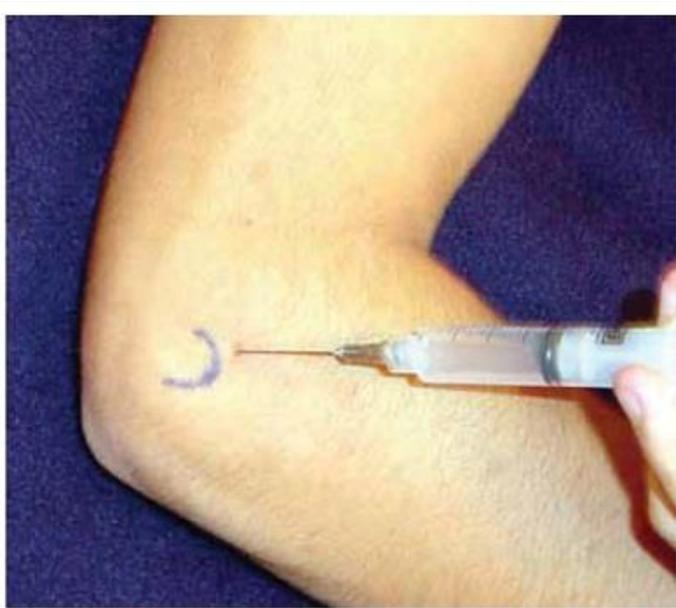


Figure 3 – Illustration of the ideal location for performing infiltration with corticosteroids for lateral epicondylitis.

When to repeat

- ▶ Not within 4 weeks (adrenal response normalise 2-3/52)
- ▶ Symptom history under 3 months
- ▶ Good respons to previous cortisone infiltration
- ▶ Minimal structural changes on ultrasound and X-ray pictures

Cortisones' effect on disease stages

- ▶ Impingement stage 1 (tendonitis/bursitis)
 - ▶ Reduce bursitis and tendinitis
- ▶ Impingement Stage 2 (chronic symptoms with tendinosis and sometimes bursitis)
 - ▶ Reduce bursitis
 - ▶ Cortisone has possible negative effect on tendinosis
- ▶ Impingement stage 3 (tear)
 - ▶ Probable negative effect
- ▶ Lateral epicondylitis
 - ▶ Reduce tendinitis