Musculoskeletal system

Use of analgesic

1. Paracetamol (1 gram up to 4 times daily) is the oral analgesic of first choice for mild to moderate pain.

2. Paracetamol + codeine or dihydrocodeine combination- more effective but have more side effects e.g. constipation, headache, delirium, especially in the elderly.

3. Tramadol and meptazinol- opioid analgesics may be useful for temporary control of severe pain unresponsive to other measures but can cause nausea, vomiting, vertigo, dizziness and somnolence, and withdrawal symptoms after chronic use.

4. The non-opioid analgesic nefopam (30–90 mg 3 times daily) can help moderate pain, though side-effects (nausea, anxiety, dry mouth) often limit its use.

5. Patients with severe or intractable pain may require strong opioid analgesics, such as oxycodone and morphine.

Judicious use of NSAID

NSAIDs are one of the most common prescribe drug in daily practice and mainstay of treatment of inflammatory arthritis (rheumatoid and seronegative arthritis). But these NSAIDs have potential side effects, so it is better to avoid use of NSAIDs if possible.

Principles of use of NSAIDs

1. Think twice before prescribing NSAID; try to use other analgesic like paracetamol.

2. Use NSAIDs at the lowest effective dose for the shortest possible time.

3. Always try to use the safest NSAIDs (which has few or no side effects like ibuprofen).

4. Allow minimum 14 days to assess efficacy of any particular NSAIDs or dose after that NSAIDs can be changed or dose can be increased.

5. If unsatisfactory result (pain not reduce or side effects occurs) then change to another NSAIDs is necessary.

6. Effect of NSAIDs is individualized e.g. one patient getting benefit from ketorolac but other patient not.

7. Never prescribe more than one NSAIDs at a time.

8. Avoid NSAIDs in the elderly and in those with important comorbidity, including IHD, stroke, heart failure, CKD, CLD, acute hepatitis and hypertension.

9. Current use of anticoagulants (warfarin) is a contraindication to NSAIDs use.

10. NICE guidelines advise that a PPI should be co-prescribed with all NSAIDs, including COX 2-selective (e.g. etoricoxib) NSAIDs.

11. NSAID in asthma-unless NSAID clearly cause severe exacerbations of asthma, people with asthma should not be denied the benefits of NSAIDs without being offered the option of a trial to assess the effect on asthma control.

12. Coxibs are contraindicated in people with ischaemic heart disease, cerebrovascular disease, peripheral arterial disease, mild, moderate or severe heart failure.

Result of chronic NSAID therapy

1. Increased risk of cardiovascular disease.

2. NSAID-induced gastric ulcer.

3. Fluid retention and renal impairment.

4. Interstitial nephritis and anaphylaxis

Common NSAIDs with their potency and toxicity

Drug	Adult daily dose	Dose per day	Side effects/comment
Very low risk			
Celecoxib	100-200 mg	1-2	Selective COX-2 inhibitor, fluid retention occur more than other NSAID
Etoricoxib	60-120 mg	1	Selective COX-2 inhibitor, fluid retention occur more than other NSAID
Low risk			
Ibuprofen	600-1600 mg	3-4	Weak anti-inflammatory effect at this dose
Etodolac	600 mg	1	Partially selective COX-2 inhibitor
Meloxicam	7.5-15 mg	1	Partially selective COX-2 inhibitor
Medium risk			
Ibuprofen	1600-2400 mg	3-4	
Naproxen	500-1000 mg	1-2	
Diclofenac	75-150 mg	2-3	Abnormal liver function tests
High risk			
Indometacin	50-200 mg	3-4	High incidence of dyspepsia and CNS side-effects (headache, dizziness, confusion)
Ketoprofen	100-200 mg	2-4	
Highest risk			
Piroxicam	20-30 mg	1-2	Restricted use, esp. in those > 60 yrs

Mechanical low back pain (LBP)

Diagnostic tools

1. History of trauma, weight lifting or fall, obese or over weight patient.

2. LBP does not radiate beyond the knee (which would imply nerve root irritation), mainly on movements, relieve after taking rest.

3. Investigation- ESR, CRP normal, X-ray of L/S-normal.

Management

1. Reassurance, explanation (90% will recover by 6 weeks).

2. Weight loss in obese or over weight patient.

3. Analgesic- paracetamol, NSAID.

4. Muscle relaxants-baclofen.

Following advice can be given

কোমড়ে ব্যাথা/ হাঁটু ব্যাথার রোগীকে নিচের নিয়মগুলো মেনে চলতে হবে।

উপদেশ

১) ওজন কমাবেন।

২) পিঁড়া, টুল, মোড়া ইত্যাদিতে (কোমড় ভাজ করে) বসবেন না। হাঁটু ভাঁজ করে বসবেন না। চেয়ার বা চেয়ারের সমান উঁচু টুল এ বসতে পারবেন।

৩) নীচে বসে বটি দিয়ে মাছ, তরকারী কাটা যাবে না। তরকারী টেবিলে রেখে চেয়ারে বসে বা দাঁড়িয়ে কাটার বা ছুরি দিয়ে কাটতে হবে। নীচে বসে কাপড় ধোয়া যাবে না। কাপড় উঁচু জায়গায় রেখে ধোয়া যাবে।

৪) চুলা টেবিলের সমান উঁচু করে নেবেন। দাড়িয়ে/চেয়ারে বসে রান্না করবেন।

৫) ভারী জিনিস যেমন-পানির বালতি তুলবেন না।

৬) উঁচু-নীচু বিছানায়/আঁকাবাঁকা হয়ে ঘুমাবেন না।

৭) নামাজ চেয়ারে বসে ঈশারা করে পড়বেন। সেজ্জা দেয়া যাবে না।

৮) পায়খানা/প্রসাব করার জন্য উঁচু কমোড ব্যবহার করবেন। উঁচু কমোড না থাকলে চেয়ার কিনে ব্যবহার করবেন।

৯) বেশী ব্যাথার ঔষুধ খাবেন না। ব্যাথার ঔষুধ বেশি খেলে কিডনী/হার্টে সমস্যা হতে পারে।

১০) Cortan/ Deltasone/ Decason জাতীয় ঔষুধ কখনই চিকিৎসকদের পরামর্শ ছাড়া খাবেন না।

Osteoarthritis

Diagnostic tools

1. Patients are usually obese or over weight and old age.

2. LBP or pain in knee joint or other joints mainly on movements, relieve after taking rest, no or morning stiffness for few minutes.

3. X-ray of the affected joint-features of osteoarthrosis.

4. Investigation- ESR, CRP normal, X-ray of L/S-bilateral osteophytes may be present in vertebrae.

Management

1. Full explanation of the condition e.g.

* Established structured changes are permanent.

* Pain & function can be improved.

2. Exercise- strengthening & aerobic exercise.

3. Hot or cold compression.

4. Reduction of adverse mechanical factors e.g.

- Weight loss if obese or overweight

- Shock absorbing foot wear

- Use of walking stick for painful knee or hip OA.

5. Drug

- Paracetamol

- Topical NSAID

- Oral NSAID

6. Intraarticular injection of corticosteroid to relieve pain of knee & thumb base OA (injection depomethylprednisolone 80 mg for large joint and 40 mg for small joint).

7. Surgery-osteotomy & joint replacement for knee & hip joint OA. Indicated in:

i) OA in whom pain, stiffness & reduced function impact significantly on their quality of life.

ii) Refractory OA (refractory to non-surgical & adjunctive treatment).

KvDwÝwjs

GB ‡ivM eqmRwbZ †ivM, eqm n‡j †hgb Pzj †c‡K hvq †Zgwb nvৃ ¸‡jv †c‡K hvq| GB †ivM m¤ú~©Y fv‡e fv‡jv nq bv| Z‡e wbqgKvbyb †g‡b Pj‡j my¯’ _vKv hvq|

Rheumatoid arthritis

Diagnostic tools

1. Patient present with multiple joint pain with joint swelling (particularly small joints of the hand and foot). Morning stiffness for more than 1 hour.

2. On examination-usually MCP, PIP of both hands and/or MTP of both feet are swollen and tender.

3. Investigation-ESR, CRP raised. RF (Rheumatoid factor) and

anti-citrullinated peptide antibodies (ACPA) usually positive.

4. Before starting DMARD CBC, SGPT, creatinine should be done. (because almost all the DMARDs are hepatotoxic, nephrotoxic and cause bone marrow suppression).

Management

1. NSAID (according to patient's sensitivity, effect of NSAID is individualized, one patient getting benefit from ketorolac but other patient not).

3. Prednisolone 30 mg daily gradually reducing in 5 mg increments every 2 weeks until therapy is withdrawn after about 12 weeks.

4. For large joint synovitis – intraarticular depomethylprednisolone can be given

5. DMARDs require 6-8 weeks to act, during this time pain can be reduced by intramuscular injection of depomethylprednisolone weekly for 6-8 weeks.

6. DMARDs-this should be started as soon as possible; methotrexate is the first choice if no contraindication.

If the patient fails to respond adequately or toxicity occurs, then an additional DMARD should be commenced in combination with MTX. The most common combination is triple therapy methotrexate, sulfasalazine and hydroxychloroquine.

If disease activity remains high (DAS 28> 5.1) despite triple therapy, however, it is usual to progress to biologic therapy.

Dose of commonly use DMARDS

1. Methotrexete-start at 15 mg weekly along with folic acid 5 mg weekly, the dose can be increased to 25 mg weekly over 12 weeks.. Contraindicated in pregnancy & lactation, hepatic and renal impairment.

2. Sulfasalazine- contraindicated in hepatic and renal impairment but safe during pregnancy and lactation. Should be started at low dose and increase gradually, up to 4 gram daily can be given.

(Tab. sulfasalazine 500 mg 1 wU ewo mKv‡j Lv‡eb 7 w`b, Gici 1wU ewo mKv‡j I 1wU ewo iv‡Z Lv‡eb 7 w`b, Gici 1wU ewo mKv‡j, 1wU ewo `ycy‡i I 1wU ewo iv‡Z Lv‡eb 7 w`b, Gici 2wU ewo mKvেত I 2 wU ewo iv‡Z Lv‡eb Pj‡e|)

3. Hydroxychloroquine-good drug can be used in hepatic, renal impairment and during pregnancy and lactation. Usual dose 200-400 mg daily.

4. Azathioprine-can be used in renal impairment, during pregnancy and lactation. The typical starting dose is 1 mg/kg body weight per day, increasing to 2.5 mg/kg until a response is observed or toxicity occurs.

5. Leflunamide-can be used in resistant cases with MTX, SZA. Usual dose 10-20 mg daily.

Advices: Patient getting DMARD should be vaccinate against influenza vaccine, pneumococcal vaccine, hepatitis B vaccine. (wb‡Pi f¨vKwmb¸wj w`‡q †b‡eb- Influenza vaccine, Pneumococcal Vaccine, Hepatitis B vaccine.)

Follow up

1. Monthly for 3 months then 3 monthly lifelong.

2. During follow up following points to be noted-clinical improvement (tender joint count and swollen joint count, functional capacity).

3. To see disease activity and DMARD side effects-CBC, SGPT, S. creatinine. CBC to see bone marrow suppression, SGPT-hepatotoxicity, creatinine-renal impairment.

Ankylosing spondylitis

Diagnostic tools

1. Patient usually young, complaint of LBP, more marked after taking rest, significant morning stiffness, peripheral large joint (knee, ankle and elbow) may also involved.

2. Investigation-ESR and CRP increase, X-ray of pelvis (A/P) reveal bilateral sacroilitis, HLA B27 usually positive.

Management

Non-pharmacological

1. Explanation & education.

2. Daily back extension exercise including a morning 'warm up' routine.

3. Avoid prolonged period of inactivity work like driving, computer work etc.

4. Swimming is the best exercise.

Pharmacological treatment

1. NSAID-once daily or slow release taken at bedtime.

2. DMARD-for severe and/or persistent peripheral musculoskeletal features of SpA, both sulfasalazine and methotrexate are reasonable therapy choices.

3. Anti TNF therapy for disease inadequately controlled with above measure.

4. Oral corticosteroid- in acute uveitis.

5. Local glucocorticoid injections can be useful for persistent plantar fasciitis, other enthesopathies and peripheral arthritis.

Surgery

Severe hip, knee or shoulder arthritis with secondary OA may require arthroplasty. Spinal osteotomy to correct stoop and make eyeline/posture ‘more normal’, can make a significant difference to patients with severe ankylosed kyphotic spines.

Dc‡`k

1. GKUvbv †ewk¶Y †Pqv‡i e‡m _vK‡eb bv, gv‡S gv‡S সাঁতার KvU‡eb|

2. gv‡S gv‡S weQvbv‡Z উপুড় n‡q ï‡q _vK‡eb|

3. পিঁড়া, Uzj BZ¨vw`‡Z (†Kvgo fvR K‡i) em‡eb bv|

4. wb‡P e‡m Kvco ধোঁয়া hv‡e bv| fvwi wRwbm Zzj‡eb bv|

5. উঁচুz-wbPz weQvbvq ï‡eb bv| আঁকা–বাঁকা n‡q Nygv‡eb bv|

6. cvqLvbvq DPz K‡gvW e¨envi Ki‡eb|

7. Lye †ekx e¨_vi Ilya Lv‡eb bv| e¨_vi Ilya †ekx †L‡j wKWbx/ nrwc‡Û mgm¨v n‡Z cv‡i |

8. Cortan/ Deltasone/ Decason RvZxq Ilya KL‡bvB wPwKrm‡Ki civgk© Qvov Lv‡eb bv |

9. wb‡Pi f¨vKwmb¸wj w`‡q †b‡eb- Influenza vaccine, Pneumococcal Vaccine, Hepatitis B vaccine.

Reactive arthritis

Diagnostic tools

1. The onset is typically acute, with an inflammatory oligoarthritis that is asymmetrical and targets lower limb joints, typically the ankles, midtarsal joints, metatarsophalangeal joints or knees. Achilles tendinitis or plantar fasciitis may also be present.

2. Extraarticular features may be present- circinate balanitis, keratoderma blennorrhagica, nail dystrophy with subungual hyperkeratosis, oral ulcer etc.

3. Investigation- ESR and CRP are raised, X-ray of pelvis (A/P) reveal unilateral sacroilitis, urine C/S and high vaginal swab C/S may reveal urethritis and causative organism.

Management

1. Rest

2. NSAID

3. If chlamydial urethritis is diagnosed, it should be treated empirically with a short course of doxycycline or a single dose of azithromycin.

4. Intra-articular or systemic glucocorticoids may be required in patients with severe monarticular synovitis or polyarticular disease, respectively.

5. DMARD (sulfasalazine or methotrexate)) should be given if

-Persistent marked symptom

-Recurrent arthritis

-Severe keratoderma blenorrhagica

6. If there is aterior uveitis- topical, oral, subconjunctival steroid.

Psoriatic arthritis

Diagnostic tools

1. Diagnosed case of psoriasis.

2. Present with medium to large joint oligoarthritis (knee, ankle, elbow); small joint arthritis with DIP joint involvement; LBP

3. Investigation- ESR and CRP usually increase. RF, ANA, anti CCP negative.

Management

1. Avoid splint & prolong rest.

2. NSAID.

3. Intrarticular injection of steroid to control synovitis.

4. DMARD- MTX is the choice. Other DMARDs may also be helpful, including sulfasalazine, ciclosporin and leflunomide.

5. Anti TNF therapy in whom DMARD fail.

Gout

Diagnostic tools

1. In almost all cases, first attacks a metatarsopharyngeal joint. Other common sites are, in order of decreasing frequency, the ankle, midfoot, knee, small joints of hands, wrist and elbow. The axial skeleton and large proximal joints are rarely involved and never as the first site.

2. Investigation- serum uric acid usually raised. The diagnosis of gout can be confirmed by the identification of urate crystals in the aspirate from a joint, bursa or tophus.

Management

Acute attack

1. Application of ice pack.

2. NSAID.

3. Oral colchicine given in doses of 0.5 mg twice or 3 times daily is the treatment of first choice.

4. Oral prednisolone (15–20 mg daily) or intramuscular methylprednisolone (80–120 mg daily) for 2–3 days are highly effective and are a good choice in elderly patients where there is an increased risk of toxicity with colchicine and NSAID.

5. Joint aspiration & intraarticular injection of steroid

Long term management

1. Correction of predisposing factors.

2. Weight loss & reduction of excess alcohol intake especially beer.

3. Diuretics should be stopped if possible.

4. Avoid sea food, red meat.

5. Urate lowering drug-allopurinol in individuals who have more than one acute attack within 12 months and those with complications such as tophi or erosions. Dose- initial 100 mg daily (50 mg in elderly), gradually increase the dose up to 900 mg daily.

Febustat in patient with inadequate response with allopurinol or when allopurinol can not be given e.g. renal impairment or allopurinol cause adverse effect. Dose 80-120 mg/day.

Follow up

S. uric acid should be measured 3-4 weeks interval.

Advice to the patient

1. KwjRv, UviwK gyiMx, mvgyw`ªK gvQ Lv‡eb bv|

2. গরু, Lvwm, gyiMx I nv‡mi gvsm Kg Lv‡eb|

3. Wvj, gUik~uwU, মাশরুম, ফুলকপি Kg Lv‡eb|

Tips

1. During initiation of urate lowering drug acute attack may occur but drug should not be stopped.

2. Acute attack during initiation of urate lowering therapy; oral cholchicine or NSAID can be added.

Septic arthritis

Diagnostic tools

1. Sudden onset of joint pain with swelling (usually large joint-knee joint), with overlying redness of the skin, fever.

2. On examination-local temperature increase, joint extremely tender and joint effusion present.

3. Urgent investigation-synovial fluid for Gram staining & culture; blood for CBC & culture, consider sputum, urine culture.

Management

1. Intravenous antibiotic for 2 weeks (then oral for 4 weeks)

-Flucloxacillin (2 g 4 times daily)

-If penicillin-allergic: clindamycin (450–600 mg 4 times daily in younger patients), intravenous vancomycin (1 g twice daily if age > 65 years)

-If high risk of Gram-negative sepsis (recurrent urinary tract infection): intravenous gentamycin (5 mg/kg once daily) or vancomycin (750–1000 mg twice daily). (then change according to C/S report).

2. Serial needle aspiration 1-3 times per day.

3. NSAID- to relieve pain.

4. Physiotherapy from the first day

-Regular passive movement progressing to active movement.

SLE

Diagnostic tools

1. Patient usually present with joint pain, facial rash, oral ulcer, alopecia etc.

2. On examination-ulcer or erosion may be present in hard palate, alopecia and tenderness in small joints of the hands.

3. Investigation-CBC-high ESR, leucopenia and lymphopenia are typical of active SLE, along with anaemia, haemolytic anaemia and thrombocytopenia. ANA-positive. To see the renal involvement-urine R/M/E, s. creatinine.

General management

1. Educate the patient.

2. Avoid sun & UV light exposure, employ sun block.

3. Avoid smoking.

4. Control hypertension & dyslipidaemia if any.

Mild disease (restricted to skin & joints)

1. NSAID.

2. Hydroxy chloroquine 200-400 mg daily

3. Frequently, however, glucocorticoids are also necessary (prednisolone 5–20 mg/day), often in combination with immunosuppressants such as methotrexate, azathioprine or mycophenolate mofetil (MMF).

Severe and life threatening disease (affecting kidneys, CNS or CVS) requires high dose steroid plus immune suppression.

1. A commonly used regimen is pulse methylprednisolone (10 mg/kg IV) plus cyclophosphamide (15 mg/kg IV), repeated at 2–3-weekly intervals for six cycles. Alternatively

in renal involvement cyclophosphamide can be replaced with mycophenolate mofetil (MMF) with fewer side effects.

2. Following control- prednisolone 40-60 mg daily, gradually reducing to 10–15 mg/day or less by 3 months. Azathioprine (2–2.5 mg/kg/day), methotrexate (10–25 mg/week) or MMF (2–3 g/day) should also be prescribed.

3. Co-trimoxazole 960 mg thrice weekly to prevent P. carinii infection due to cyclophosphamide.

4. Mesna is given with bolous cyclophosphamide to reduce risk of haemorrhagic cystitis.

5. Lupus nephritis with antiphospholipid syndrome who have had previous thrombosis require lifelong warfarin.

Systemic sclerosis

Diagnostic tools

1. Patient present with tightening of skin, joint pain and blackening of the fingers (Raynaud's phenomenon).

2. On examination-skin tightening present and gangren may be present in fingers.

3. Investigation-antitopoisomerase antibody and anticentromere antibody may be positive (diagnosis is usually clinical).

Management

A) Raynaud's syndrome with digital ulcer

1. Avoid cold exposure.

2. Use of thermal insulating gloves/socks and maintenance of a high core temperature will help.

3. If symptoms are persistent, calcium channel blockers, losartan, fluoxetine and sildenafil have efficacy.

4. Antibiotic (longer duration than usual).

5. Intermittent infusion of epoprostenol may benefit severe digital ischaemia

B) Ooesophageal reflux-PPI and metochlopramide or domperidone.

C) Antibiotic for bacterial overgrowth.

D) Hypertension-ACEi should be given even in renal impairment.

E) Joint involvement-analgesic and/or NSAIDs. If synovitis is present and RA co-exsist (overlap condition), low-dose methotrexate can be of value.

F) Pulmonary hypertension- endothelin-1 antagonist ' bosentan'

G) Glucocorticoids and pulse intravenous cyclophosphamide are the mainstays of treatment in patients who have progressive interstitial lung disease.

Following advice should be given

1| VvÛv †Kvb wKQz (AvBmwµg, eid, wd«R †Lvjv/wd«R †_‡K wKQz †ei Kiv BZ¨vw`) nvZ w`qv ai‡eb bv|

2| kxZKv‡j nvZ I cv‡q me mgq †gvRv ci‡eb|

3| kxZKv‡j nvZ-cv †avqv/†Mvm‡ji R‡b¨ Mig cvwb e¨envi Ki‡eb|

4| Kvco KvPv mvevb, wWUvi‡R›U nv‡Z jvMv‡eb bv|

5| Lvevi LvIqvi ci c‡iB ï‡q ci‡eb bv| 10-15 wgwbU nvUvi ci ï‡eb|

6| Pvgovq Awjf I‡qj/f¨vmwjb jvMv‡eb|

Polymyositis & Dermatomyositis

Management

1. Oral glucocorticoids (prednisolone 1 mg/kg daily) are the mainstay of initial treatment of PM and DM (If there is a good response steroid should be reduced by approximately 25% per month to maintain dose of 5-7.5 mg).

2. Intravenous methylprednisolone 1 gm daily for 3 days in patient with respiratory or pharyngeal weakness.

3. Most patients require additional treatment with azathioprine & MTX.

4. Intravenous immunoglobulin may be effective in refractory cases.

Bechet's Syndrome

Diagnostic tools

1. Oral ulcer -deep & multiple.

2. Genital ulcer.

3. Skin leishon-erythema nodusum or acneform leison.

4. Migratory thrombophlebitis.

5. Anterior or posterior uveitis.

6. Neurological sign-brain stem involvement, pyramidal tract signs etc.

Management

1. Oral ulcer- topical steroid preparation.

2. Colchicine for erythema nodusum & arthalgia.

3. Thalidomide 100-300 mg daily for 28 days & effective for resistant oral & genital ulcer.

4. Corticosteroid & immunosuppressive for systemic disease.

Polymyalgia rheumatica (PMR)

Diagnostic tools

1. Older adults over the age of 50 years.

2. Complaint of shoulder and hip stiffness, which worse at morning and gradually improve as the day progress.

3. Investigation-ESR and CRP increase.

Management

1. Prednisolone 20-30 mg daily gradually reduce the dose 10-15 mg by about 8 weeks ultimately 5-7.5 mg for 12-14 weeks.

2. Immunosuppressive like MTX, azathioprine when steroid require > 7.5 mg/day.

Osteoporosis

Diagnostic tools

1. Osteoporosis does not cause symptoms until a fracture occurs, patient may have low trauma fracture, vertebral compression, osteopenia in X-ray etc.

2. Investigation-DEXA (BMD)-T score>-2.5.

Non-pharmacological treatment

1. Cessation of smoking.

2. Moderation of alcohol intake.

3. Dietary calcium intake.

4. Exercise.

Drug treatment

Indication

1. BMD T score below -2.5 or below -1.5 in corticosteroid induced osteoporois.

2. Vertebral fracture irrespective of BMD (except traumatic vertebral fracture).

Drugs used

1. Alendronate 70 mg/week or risedronate 35 mg/week. Orally on empty stomach & no food should be taken and should not lie in bed up to 30-45 minutes of administration.

2. Calcium & vit-D.

3. PTH- teriparatide. Superior to alendronate. It is expensive, reserve for

    a) Szevere osteoporesis BMD T score -3.5 to - 4.0 or below

    b) Failure to respond adequately to other treatment.

Duration 24 months, after that bisphosphonate should be used to maintain BMD. Teriparatide should not be used simultaneously with bisphosphonate.

4. Calcitonin- has analgesic properties. Sometimes used short to medium time in patient with acute vertebral fracture. Dose S/C or IM 100-200U daily or intranasal spray 200 micro units daily.

5. HRT-primarily indicated for prevention of osteoporosis in women with an early menopause & for treatment of women with osteoporosis in their early fifties who have troublesome menopausal symptoms.

6. Calcitrol-recently licensed for treatment of osteoporesis.

Surgery

1. Hip replacement- total or partial, indicated for intracapsular fracture of femoral neck.

2. Kyphoplasty-indicated for acute vertebral compression fracture where there is a significant degree collapse & severe pain.

3. Vertebroplasty- indicated for painful vertebral fracture which fails to settle by medical treatment.

Follow up

1. BMD repeat after 2-3 years

2. NTX (N-Telopeptide) respond quickly than BMD.

Osteomalasia & Rickets

Management

Respond quickly to treatment with ergocalciferol 250-100 µgm daily. After 3-4 months treatment can generally be stopped or the dose of vit-D reduce to maintenance level of 10-20 µgm cholecalciferol daily except in patient with malabsorption in whom higher dose may be required.

Follow up

1. Clinical improvement

2. Elevation in 25(OH)D

3. Reduce in PTH.