Treatment of Myasthenia Gravis:

- Women under 40 men under 60
- Muscle that controls eyelid, facial expression, chewing etc

First line treatment:

Oral Acetylcholinesterase inhibitor – increase amount of AcH at NM

- Pyridostigmine – 15mg QDS with food – starting dose
  - ➔ Immunosuppressant to treat underlying immune dysfunction
- Maintenance dose 60mg 4-6 times daily

Interferes with neuromuscular transmission	Increase muscle weakness
Phenytoin, carbamazepine	Magnesium causing hypermagnesaemia
Aminoglycosides, colistimethate, clindamycin, fluoroquinolone, macrolides, telithromycin	Benzodiazepines
Antimuscarinic agents (unless s/e Tx)	Beta-blockers
Procainamide and lidocaine	Diuretics (secondary to electrolyte disturbances)
Lithium, chlorpromazine	Verapamil
Hydroxychloroquine	Statins

➔ Drugs to avoid as it can cause electrolyte imbalance

Adverse effects:

- Nicotinic effects – muscle and abdominal cramps
- Muscarinic effects – cramps, diarrhoea, increased sweat/salivation/lacrimation, hypotension, bradycardia, miosis (pupil constriction), urinary incontinence, increased bronchial secretions and tachypnoea

Cholinergic crisis from overdose

Management of side effects:

- Take medicine with food to avoid GI side effects
- Prescribe anti-cholinergic drugs alongside: Glycopyrrolate and Propantheline

➔ Anticholinergic drugs block action of Ach NT by co-prescribing this, prevent excess Ach in synaptic cleft that cause muscle weakness

- Loperamide for diarrhoea

Monitor muscle weakness and drugs that can exacerbate muscle weakness -> monitor electrolyte imbalance

Treatment of Osteoarthritis:

Pain Relief:

- Topical NSAIDs or Topical Capsaicin
- Paracetamol
- Oral NSAIDs with Proton Pump Inhibitor for Gastroprotection
- Opioids
- Regular Exercise of joints

Treatment of Rheumatoid Arthritis

(NICE) ("Treat to target" – Frequent reviews, assessments of joints and inflammation using DAS-28 monthly):

DAS28 >5.1 active, DAS<3.2 low, DAS<2.6 remission

+ monitor CRP and ESR

Target is remission if antiCCP positive

First line: cDMARD monotherapy ASAP (within 3 months of onset of symptoms) –

- Methotrexate, Leflunomide or Sulfasalazine – escalate dose as tolerated
- If patient has mild palindromic disease – Hydroxychloroquine
- When starting new DMARD, consider short term bridging therapy – glucocorticoid therapy

➔ Remove w/i 3 months, antiinflammtory

➔ Prednisolone 7.5-10mg/day up to 30mg/day

Second line if dose increase doesn't meet patients' target:

- Offer additional cDMARD – oral methotrexate, leflunomide, sulfasalazine, hydroxychloroquine

Pain Relief:

If pain is inadequately controlled:

- NSAIDs -traditional or COX-2 inhibitors – lowest possible dose

➔ Celecoxib for symptom control

- Prescribe PPI alongside for gastroprotection
- Review patient pain regularly

RA maintained for 1 year:

Consider step down strategy:

- Return to previous DMARD if target no longer met

If Combination therapy not effective (severe):

Consider:

- bDMARD – Adalimumab (for UC and crohns as well), etanercept, infliximab, certolizumab pegol, golimumab (for UC as well), tocilizumab and abatacept + MTX are options
- tDMARD - baricitinib and tofacitinib

Monitoring disease:

- Review 6 months after achieving target to ensure maintainence
- Annual review: Assess disease activity, damage and functional ability (i.e. with HAQ), assess effect on personal life, check for development of comorbidities

Treatment of Rheumatoid Arthritis (EULAR)

As soon as diagnosis is made:

First line: Methotrexate

If MTX contraindicated: Leflunomide or sulfasalazine should be considered as first line

- Consider short term gluco corticosteroids in between changing drugs and doses and forms, but should be tapered as rapidly as clinically feasible. (Treat to target)
- If improved at 3 months and achieved target at 6 months: continue taking and reduce dose in sustained remission
- If no improvement with no poor prognostic factors: Consider changing cDMARD or adding a second cDMARD – leflunomide or sulfasalazine added on with glucocorticoid therapy
- If no improvement with poor prognostic factors present: addition of a bDMARD or JAK inhibitor should be added.

➔ JAKi: Upadacitinib and baricitinib increase risk of VTE (DVT or PE)

- If no improvement after this: Change bDMARD or JAK inhibitor

Biologics Therapeutics:

- Gives increased risk of infection
- Increased risk of malignancy
- Increased risk for cardiac failure patients – TNF inhibitors especially
- Alcohol within limit (14 units) is fine, but may need to stop if concomitant DMARDs are used

Monitoring

- For co-morbidities
- Full blood count (FBC) – neutropenia, thrombocytopenia, lymphopenia
- Renal function (eGFR, Cr)
- Liver function tests (LFT's, esp. AST and ALT and also albumin)
- Test for tuberculosis
- Hepatitis screen (B and C)
- Chest x-ray – pulmonary toxicity
- Ongoing therapy should be reviewed at least every 6 months

Special Consideration:

Patients should stay on the same brand unless changed by the prescriber

Infliximab -TNF inhibitor:

Example dosing for RA: 3mg/kg at Weeks 0,2,6. Then every 8 weeks. Taken with MTX ONCE a week.

IV Infusion of Infliximab:
- Over 2 hour infusion, after infusion 1-2 hours of observation needed bc risk of delayed hypersensitivity and anaphylaxis
- Before infusion: antihistamines, hydrocortisone (methylprednisolone) and/or paracetamol can be given

Lower infusion rate if patient has had reactions before

Side effects of infliximab:
Very common – infection (upper respiratory infection), headache, infusion related reaction, pain
Most serious – serious infections and reactivations, new or worsening HF, delayed hypersensitivity, haematological reactions, demyelinating disorders, hepatobiliary events, malignancies, serious infusion reactions

Infliximab contraindications:
- If patient has hypersensitivity to murine proteins
- Severe infection, TB, abscesses, opportunistic infections
- Moderate to severe Heart failure

Cautioned in:
- Chronic/recurrent infections/immunosuppressive drugs
- Patients with demyelinating diseases
- Malignancy
- Mild heart failure
- Elderly

Methotrexate Therapeutics:
- Methotrexate is taken once a week, on the same day each week. (Methotrexate Monday)
- Folic acid 5mg OD is taken 1-6 days a week, not on the MTX day (Folic Acid Friday)

It takes 6 weeks to start working and 12 weeks (3months) for maximum effect -RA

In RA, dose escalation is needed to reach optimum dose:
- 2.5-5mg increase ever 1-3 weeks, aim for optimum dose by 4-6 weeks

When starting therapy, a baselines assessment must be done:
- FBC, LFT, U&E, Renal function, Chest X-Ray

Monitoring Methotrexate:
LFT, renal function and FBC should be done every 1-2 weeks until therapy stabilised. Once stabilised, every 2-3 months.
Watch out for patients' symptoms:
- Infections – sore throat, bruising, bleeding
- Nausea, vomiting, abdominal discomfort and dark urine
- Shortness of breath

Key side effects of MTX:
- Bone marrow suppression
- GI toxicity
- Liver toxicity
- Pulmonary toxicity
- Skin reactions

Key contraindications:
- Active infection
- Severe renal impairment
- Hepatic impairment
- Bone marrow suppression
- Immunodeficiency
- Pregnancy and breast feeding

Key cautions:
- Surgery
- Renal impairment
- Diarrhoea
- Ascites
- Peptic ulcer

MTX key considerations:
Only supply amount of MTX and folic acid needed
Missed doses can be taken within 2 days
Interactions:
- Anti-folates – co-trimoxazole, trimethoprim
- NSAIDs
- Live vaccines
- Ciclosporin

*** ciprofloxacin -> fluroquinolone (quinolone) increase levels of methotrexate

Recommended vaccines to take: Pneumococcal and influenza
Methotrexate card documents all doses and patient information

Sulfasalazine
- Ok in pregnancy, no crushing, no antacids, NSAIDs ok
- Infertility in male, do not use in asthma
- Gradual increase in dose up to 3 months

Leflunomide Therapeutics:
For RA – 100mg OD for 3 days as a loading dose – if increases adverse effects, omit
Maintenance – decrease to 10-20mg OD
Effectiveness starts around 4-6 weeks, can improve further around 4-6 months

Monitoring: LFT, FBC and BP
- Prior to initiation
- Every 2 weeks for the first 6 months
- Then every 8 weeks

Side effects:
- Hepatic impairment
- Bone marrow suppression – leucopenia, anaemia, thrombocytopenia, pancytopenia
- Increased BP (Common)

Common side effects:
- GI
- Alopecia
- Skin reactions
- Dizziness

Contraindications
- Hepatic impairment – accumulation
- Severe immunodeficiency
- Severe infection
- Severe hypoproteinaemia
- Moderate to severe renal impairment – no data
- Pregnancy
- Breastfeeding

Cautions
- Administration with haematotoxic or hepatotoxic drugs
- History of TB
- Bone marrow suppression – anaemia, leucopenia, thrombocytopenia

If stopping Leflunomide:

- Active metabolite has a half-life of 1-4 weeks, therefore needs a washout procedure:
- Stop treatment
- Give cholestyramine 8 g TDS or activated charcoal 50g QDS
- Treat for 11 days
- Monitor after discontinuation

Additional advice to patients:
- Avoid live vaccines
- Avoid alcohol (increased risk of hepatic impairment)
- Can be taken with or without food

Ciclosporin Therapeutics:
Important side effects:
Immunosuppression increases the risk of infections and developing lymphomas and malignancies especially in the skin

Contraindications:
- Abnormal baseline renal function
- Malignancy
- Uncontrolled hypertension
- Uncontrolled infection

Cautioned in:
- Elderly
- Gout patients
- Hepatic impairment

Monitoring of ciclosporin (same for baseline and throughout treatment):
- Renal and hepatic function
- BP
- Lipids
- Electrolytes – potassium, magnesium
- Uric acid

Interactions of ciclosporin:
- CYP450 inhibitors increase blood ciclosporin levels
- CYP450 inducers reduce blood ciclosporin levels
- Avoid statins or if needed reduce dose
- Potassium sparing diuretics
- Ciclosporin inhibits CYP3A4, p-glycoprotein and Organic Anion transporter proteins

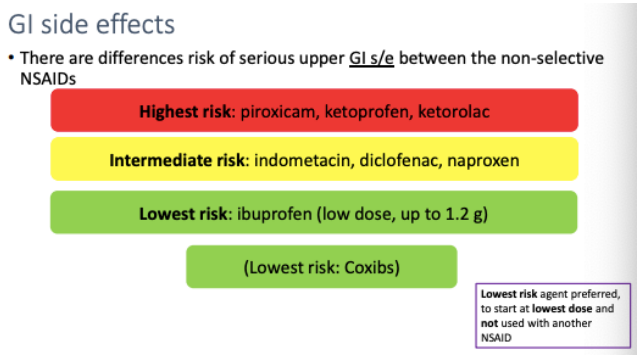
Oral dose of ciclosporin is 3x IV formulation
Required oral dose should be mixed with orange or apple juice before administration

Advice to patients:
BD preparation
- Should stay on the same brand
- Time of day and proximity to food should remain consistent
- Avoid live vaccines

NSAID Therapeutics:
Paracetamol – suitable for elderly and patients with hypertension, CVD, renal impairment, GI issues or someone taking warfarin compared to taking an NSAID (warfarin + NSAID interaction)

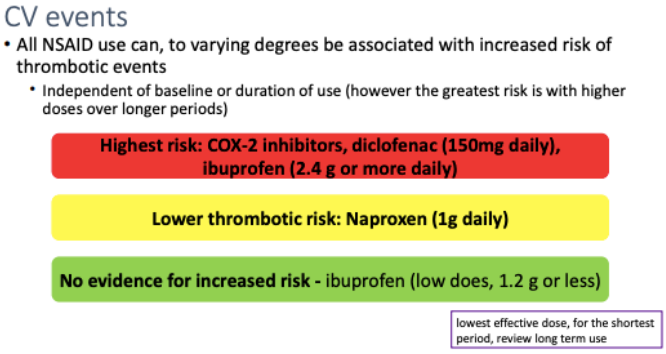
Aspirin: 300-900mg every 4-6 hours for pain relief (MAX 4g)
- Contraindicated in children under 16 unless they have Kawasaki syndrome
- Contraindicated in patients with: previous or active peptic ulcerations, bleeding disorders, severe cardiac failure, previous hypersensitivity to aspirin or NSAID
- Elderly caution
- Caution in patients with asthma
- *** DO note use in GOUT and don't use with methotrexate

Interactions:
- Drugs that increase the risk of GI irritation and bleeding – steroids, NSAIDs, SSRI's, anticoagulants
- Drugs that increase the risk of renal side effect – Bisphosphonates
- Drugs where aspirin can increase the toxicity of other drugs – Methotrexate
- COX-2 agents/coxibs have a lower risk of upper GI side effects than NSAIDs.



When choosing an NSAID:
1. Lowest risk agent preferred
2. Start at lowest dose
3. Use for the shortest duration (review need)
4. Do not use more than one NSAID at a time
5. Advise medication to be taken with food to reduce contact irritation
6. Co-prescribe with gastroprotection in those patients at risk of GI ulceration, i.e. PPI
7. Monitor for adverse events
8. Review patient for risk factors

Monitoring:
Look out for dyspepsia/GI irritation, Hb levels and signs of GI bleeding – haemoptysis, dark stools



When choosing an NSAID with someone with a high CVD risk:
1. NSAID selection
2. Use lowest effective dose
3. Use for the shortest duration (review need of long-term therapy)
4. Monitor for adverse events
5. Review patient for risk factors
- COX-2 inhibitors, diclofenac and high dose ibuprofen are contraindicated in ischaemic heart disease, cerebrovascular disease and some stages of heart failure
- Other non-selective NSAIDs have use cautioned in patients with: heart failure, cerebrovascular disease, ischaemic heart disease, risk factors for CVD

NSAIDs cautions:
Avoid giving to patients with:

- Advanced age, renal impairment, heart failure, volume depletion, liver cirrhosis

Avoid in severe impairment/avoid or use with caution in other renal impairment:
- Use lowest effective dose for shortest duration
- Close monitoring of renal function

Monitoring:
- Renal function – GFR, urine output, urea
- BP
- Electrolytes – sodium and potassium
- Oedema (weight, visual signs)

Interactions renally:
- Co-prescribed nephrotoxic medicines – diuretics, ACE-inhibitors
- Anti-hypertensive – (opposite effect)
- Lithium and methotrexate – decreased renal elimination causing toxicity

NSAID other considerations:
- Take the lowest effect dose for the shortest period
- Take with or after food
- Self-monitor for signs of GI disturbance – report
- Do not self-medicate with other NSAIDs or aspirin

FROM THE WORKSHOP

Treatment of Gout:

- Hyperuricaemia is a risk factor
- Uric acid levels more than 380umol/ml is the solubility limit
  If higher plasma level then increased likelihood of gout
  Il1 beta related to inflammatory of GOUT

Pathophysiology

Uric acid is end product of purine (adenine & guanine) metabolism
Gout is caused by:

- Increased rate of synthesis of purine precursors of uric acid (10%) OVERPRODUCTION
- Decreased elimination of uric acid by kidney (90%) UNDER EXCRETION

In an acute attack:

Rest

Quick treatment with full dose NSAID

AVOID ASPIRIN – competes with uric acid for excretion and can worsen attack

First line: NSAIDs – full therapeutic high dose for 24-48 hours, then lower doses for 7-10 days. Consider gastroprotection alongside: Lansoprazole

Second line: if NSAID contraindicated (CVD, Renal disease or GI toxicity) or ineffective: Colchicine – 0.5mg 2-4 times a day, administer ASAP, take until pain relieved. Do not repeat course within 3 days

➔ Inhibit neutrophils into the joints

- Lower dose of 0.5mg every 8 hours if elderly or have renal impairment
- If they have diarrhoea – stop immediately

Monitor for:

- N&V
- Abdominal Pain
- Diarrhoea* - can cuase direct mucosal damage to gut lining
- Rashes, peripheral neuropathy, blood dyscrasias

Also 2nd line - Corticosteroids:

Prednisolone 30-35mg daily for 5 days (higher than RA)

Articular: Triamcinolone – consider in monoarthritis of easily accessible joint

Combination therapy: Consider NSAID with colchicine or corticosteroid if no improvement

Prophylaxis – Urate lowering therapy (If patient has 2 or more attacks per year):

First line (for first 6 months of ULT): Colchicine 0.5-1mg daily – reduce dose in renal impairment

If colchicine contraindicated – low dose NSAID or coxib with gastroprotection

First line after 6 months – Allopurinol 100mg OD, (**interaction with azathioprine) then increase dose every 3-4 weeks according to response to urate levels. Allopurinol used for symptomatic relief

- Maintenance dose: 300mg OD
- Renal impairment dose: 50-100mg

Side effects: Rashes, hypersensitivity reactions, GI disturbances – starts 1-2 weeks after acute attack has subsided, if patient is already on allopurinol at onset of attack – continue and treat acute attack

Second line treatment: Febuxostat 80mg OD (increase to 120mg if uric acid levels are more than 357umol/L after 2-4 weeks)

- Serum uric acid level male 3.5-7.2mg/dL and female 2.6-6.0mg/dL
- Continue to give if acute attack occurs during prophylaxis
- Side effects: GI, headache, increase LFTs, oedema, rash

Third line treatment: uricosuric agents: Sulfinpyrazone, Probenecid (unlicensed), Benzbromarone (unlicensed)

- Avoid in urate nephropathy
- Ineffective in poor renal function (less than 20-30ml/min)
- Need to maintain high fluid intake to decrease risk of stone formation

Canakinumab: subcutaneous injection for severe gout
Contraindicated in current infection due to risk of sepsis

IMPORTANT INTERACTION: ALLOPURINOL + AZATHIOPRINE

Allopurinol causes accumulation and potentially fatal bone marrow suppression

- Azathioprine metabolised to mercaptopurine
- Mercaptopurine metabolised by xanthine oxidase

Treatment of SLE - lupus

- NSAIDs
- Steroids
- Hydroxychloroquine – for skin, join involvement and fatigue
- Azathioprine, methotrexate, cyclophosphamide – immunosuppressants
- Anticoagulants if necessary
- Rituximab – anti CD20 on B cells
- Belimumab – anti-B cell activating factor (BAFF)

Treatment of MS – multiple sclerosis

- Interferon beta 1 – reduce neuronal inflammation + relapse rate reduced
- Alemtuzumab
- Glatiramer acetate
- Dimethyl fumarate
- Natalizumab

Immunosuppressants:

- Teriflunomide
- Cladribine
- Fingolimod
- Ocrelizumab

Peptic Ulcer Disease:
Risk factors:
H.Pylori
NSAIDs – safest NSAID is ibuprofen
Smoking
Drugs: sulfasalazine, iron preparations, corticosteroids, potassium, bisphosphonates, theophylline, calcium antagonists, nitrates

GORD:
Risk factors
Poor diet – chocolate, caffeine, alcohol
Smoking
Drugs: anticholinergics, beta 2 agonists, CCBs, Diazepam, Nitrates, Alcohol, Progesterones, Oral contraceptives, Theophylline
➔ Lower LOS pressure causing reflux

Drugs which cause oesophageal ulceration:
NSAIDS □ Bisphosphonates □ Clindamycin □ Clotrimoxazole □ Doxycycline □ Potassium □ Theophylline □ Tetracycline

Treatment of stomach and duodenal ulcers:
Identify and eradicate H.Pylori
Stop drugs that exacerbate PUD
Reduce acid production to reduce gastritis and enable mucosa repair: Block H2 or proton pump

Treatment of H.Pylori – Amoxicillin, clarithromycin, metronidazole – 2 of these alongside a PPI – antibiotics taken twice a day for 1 week.

Treatment of GORD:
Remove causative agents that lower LOS pressure
Rafting products: Gaviscon
Reduce acid production to recover oesophageal mucosa

Non pharmaceutical management of GORD:
Diet: eat smaller meals, avoid fatty and acidic foods
Avoid eating within 4 hours and drinking within 2 hours of going to bed
Avoid drugs that lower LOS pressure
Avoid tight fitting clothes
Lose weight

Avoid bending from waist
Don't lie down after eating
Raise head of bead by 15-23cm if nocturnal heartburn symptoms
Stop smoking
Reduce alcohol intake

Treatment of Dyspepsia:
Neutralise acid and reduce flatulence

Treatment options:
Antacids – neutralise acids and increase LOS pressure – Rennies, Settlers, Tums
Side effects: Constipation with aluminium and diarrhoea with magnesium preparations
Sodium content needs to be checked and avoided in patients with hypertension
Generally safe in pregnancy

Alginates and Dimethicone:
Form a raft that traps air and floats on top of stomach.
Dimethicone is an anti-foaming agent that reduces surface tension

H2 receptor antagonists:
Cimetidine, famotidine, nizatidine, ranitidine
Ranitidine (Zantac 75) is used OTC for heartburn relief – 6 days continuous treatment max

Not effective in moderate to severe GORD
Effective in mild GORD and PUD

Side effects:
Cimetidine - Gynaecomastia 0.2%, impaired libido
Nizatidine - Sweating, abnormal dream
Confusional states in elderly

Interactions:
Cimetidine binds to P450
phenytoin, theophylline, warfarin

PPI's (Zoles):
- Omeprazole, lansoprazole, pantoprazole, esomeprazole – enteric coated preparations
- Heal ulcers more rapidly than H2 antagonists. Healing rate same at 8 weeks
- PPIs superior in the treatment of reflux/GORD
- Taking lansoprazole before food decreases its bioavailability
OTC preparations:
- Omeprazole 10mg and 20mg
- Swallowed whole with plenty of water
- 20mg OD until symptoms improve then 10mg

Refer to GP if:
- No relief after 2 weeks
- If treatment required continuously for 4 weeks
- Patient is over 45 with new or changed symptoms

Other drugs:
- Metoclopramide and Domperidone – increase gastric emptying and lowers LOS pressure
- Sucralfate
- Bismuth
- Misoprostol

If they have functional dyspepsia, gastritis or PUD:
- Remove causative agents
- Change diet
- Manage symptoms
- Give H2 antagonists or PPI's

If they have GORD:
- Lifestyle and diet changes
- Alginates or PPI's
- DON'T GIVE H2 ANTAGONIST FOR GORD

IBS buscopan to relieve stomach cramps 'hyoscine butylbromide' antispasmodic drug
- **Antimuscarinic effect (Ach antagonistic effect)**
- **Dry effect promote sympathetic (fight/flight)**
- **Stop muscle contraction in stomach help w/pain**

More likely to cause antimuscarinic S/E
- **Alverine citrate/Mebeverine/peppermint oil**
- **Smooth muscle relaxants**

IBS-C >25% stool type 1/2 (hard) <25% stool type 6/7 (liquid)
IBS-D >25% stool type 6/7 <25% stool type 1/2
IBS-M
IBS-U

Treatment of Constipation:
Acute and chronic (same for adults)
- Lifestyle advice
- First line - Bulk forming laxative – ispaghula husk
- Second line – osmotic (macrogol preferred) add or removed
- Third line – stimulant laxative - senna
- Fourth line - Prucalopride in chronic

Produce soft stools at least three times per week
Faecal loading/impaction
Hard stools:
- First line -High dose oral macrogol
- Second line- stimulant
- Third line- glycerol alone or plus bisacodyl suppositories

Soft stools:
- First line - Stimulant
- Second line – docusate or sodium citrate mini enema
- Lastly – sodium phosphate or arachis oil retention enema

Lifestyle- high fibre (30g per day) 2L water per day and increased physical activity
Opioid induced
Avoid bulk forming
- First line- osmotic (such as lactulose -> laxido (can increase gas production + worsen IBS)) (or docusate) and stimulant laxative -> senna
- Inadequate response = at least one symptom of incomplete bowel movement at least moderate severity despite taking at least one laxative class for at least 4 days within two weeks
- Second line – nalexegol (PAMORA)
- Third line – methylnaltrexone
- Fourth line – naldemedine

Pregnancy and breastfeeding
- Bulk forming laxative
- Add or switch to an osmotic laxative
- Senna
- Glycerol suppository
- Children
- Macrogol
- Stimulant
- Lactulose if macrogol not tolerated

Bulk forming laxative
- Bowel liquid increase
- C/I in opioid use
- Isphaghula husk

Stimulant laxative
- Short term use
- Fast acting
- E.g., senna

Osmotic laxative
- Lactulose
- Not direct bowel effect
- Long term use w/ opioid
- 1-3 days to work
- High in sodium

Treatment of Diarrhoea:
Acute treatment of diarrhoea: Loperamide 4mg – followed by 2mg maintenance dose up to 5 days, dose to be taken after each loose stool. Max 16mg per day

Oral rehydration salts – Dioralyte – contains rice, mix sachet with water

Chronic treatment of diarrhoea: ORT and loperamide
Substitute ORT with codeine 30mg QDS if ORT ineffective
Thereafter try codeine and loperamide combination and seek specialist advice

Preventing spread of diarrhoea • Careful washing and drying of hands after using toilet, nappy changing and before meals • Don't share towels • 48h exclusion from school following cessation of symptoms • Avoid swimming for 2 weeks following last episode of diarrhoea

Non-pharmacological advice:
Note: Absorption of medicines may be affected • Drink plenty of clear fluids, • Avoid drinks high in sugar, alcohol or caffeine • Avoid carbonated drinks – cause bloating • Avoid milk and milky drinks • Eat light, easily digested food • Advise not to return to work until they have been symptom-free for 48 hours. • Close attention to hygiene, • Hand washing • Cleaning of toilet seats, flush handles and basin taps

Cdiff infection
- **Vancomycin 125mg -500mg 6H for 10days**
    - **No IV not secreted into GIT therefore ineffective against GI so NG tube instead if NBM**
- **IV metronidazole**

Treatment of Diverticular Disease:
➔ Intermittent pain lower left quadrant/infection
Mild Diverticulitis – clear liquid diet – start to reintroduce foods after symptoms subside (fever tachcardia increased RR decreased BP and N&V)
- Anti microbials – 7-10 days of oral broad spectrum

➔ 1) co-amoxiclov 500/125 TDS 5 days (cefalexin if penicillin allergy) + metronidazole 400mg TDS x5 d
➔ 2) trimethoprim 200mg BD x5 days + metronidazole 400mg TDS 5days

Severe diverticulitis – systemic involvement or complication
-Hospitalisation
– Bowel rest
– iv fluids and broad spectrum anti-microbials
– Pain management eg morphine
– Once symptoms subside, clear liquid diet and food reintroduction slowly eventually to high fibre diet (30g/day)
– Complications may be treated with surgery eg fistulas, abscesses

- **Increase WBC, increased platelets increased CRP increased temp**

Treatment of Ulcerative Colitis NICE 130

- ➔ **More in male: diarrhoea, pain 50% relapse**
- ➔ **Th2 related**
- ➔ **Colon and rectum**

Inducing remission -

Proctitis – mild to moderate

- Topical aminosalicylate (first presentation or exacerbation) suppository better than enemas and foams – mesalazine, sulfasalazine
- No remission for 4 weeks = add oral aminosalicylate
- Further = add time limited oral prednisolone 40 mg od for 6-8 weeks or prednisolone 5 mg suppositories od
- If topical declined, then oral aminosalicylate
- Aminosalicylate not tolerated = time limited oral or topical corticosteroid

Proctosigmoiditis, distal colitis (left sided) – mild to moderate

- Topical aminosalicylate (first presentation or exacerbation) enemas preferred 1g per day
- No remission for 4 weeks = add high dose oral aminosalicylate 2-3g od or switch to high dose oral and time limited topical steroid
- Further = stop topical and switch to oral aminosalicylate and time limited oral steroid
- Aminosalicylate not tolerated = time limited oral or topical steroid

Extensive colitis – mild to moderate

- Topical and high dose oral aminosalicylate
- No remission in 4 weeks = time limited course of oral steroid
- Aminosalicylate not tolerated = time limited oral or topical steroid

Moderate to severe – oral steroid prednisolone 40-60 mg 2.5mg to 10 mg weekly reduction over 6-8 weeks

Infliximab, adalimumab, golimumab – after failure of conventional therapy

- Vendolizumab – inadequate response/loss of response or intolerance to either conventional therapy or TNFalpha antagonists
- Tofacitinib – when the disease has responded inadequately/response been lost to conventional or biologic therapy

Acute severe flare

- IV steroids – methylprednisolone 60 mg OD or hydrocortisone 100 mg QDS improvement by day 3
- Intolerance or no improvement within 72 hours = IV ciclosporin (DMARD) or surgery
- If not ciclosporin = infliximab

Maintaining remission -

Proctitis – mild to moderate

- Topical aminosalicylate daily (at night) or intermittent (every third night)
- Another option = Oral aminosalicylate plus topical aminosalicylate
- 3rd option= oral aminosalicylate (not as effective)

Left sided and extensive colitis – mild to moderate

- Low maintenance dose of Oral aminosalicylate

All areas

- After 2 or more inflammatory exacerbations in 12 months that require systemic corticosteroids or if remission is not maintained by aminosalicylates = Mercaptopurine or azathioprine
- Consider azathioprine or mercaptopurine (or oral aminosalicylate if aza/merc CI) To maintain remission after a single episode of acute severe UC

Crohns Disease NICE 129

- ➔ **Any part of GI patchy inflammation**
- ➔ **Th1 related more in female**
- ➔ **NSAIDs**
- ➔ **COC -> crohn's**
- ➔ **Antibiotics**

Inducing remission

Steroid monotherapy at first presentation or single inflammatory exacerbation in 12 months oral prednisolone 40 mg OD 5mg weekly change at a time

- If oral not possible = hydrocortisone 100mg QDS iv
- If steroid refused or contraindicated but not in severe disease = Budesonide less effective than steroids

ADDONS

For Mild to moderate ileocolonic disease 9mg OD is beneficial in proximal disease (British gastroenterology)

- Aminosalicylate if contraindicated or not tolerate steroid (British gastroenterology not recommends but nice does)
- Consider adding azathioprine (2-2.5 mg per kg per day) or mercaptopurine (1-1.5 mg) to glucocorticosteroid or budesonide to induce remission (if 2 or more inflammatory exacerbations in 12 months or if glucocorticosteroid dose cannot be tapered)
- Consider adding methotrexate to glucocorticosteroid or budesonide in those who cannot tolerate azathioprine or mercaptopurine or low TPMT activity (if 2 or more inflammatory exacerbations in 12 months or if glucocorticosteroid dose cannot be tapered)

Infliximab and Adalimumab (moderate severe)

- Licensing – for adults with moderately/severely active disease, whose disease has not responded to conventional therapy
- Should be given as a planned course until treatment failure or 12 months after initiation
- Continue if there is clear evidence of ongoing active disease (symptoms, biological markers and investigations – endoscopy)
- You may also see this therapy given with an immunosuppressant

Ustekinumab (monoclonal antibody): Used to treat moderate to severe active crohns disease with adults with an inadequate response with, lost response to, or were intolerant to either conventional therapy or a TNF alpha inhibitor.

Vedolizumab (integrin blocker): Used to treat moderate to severe active crohns disease – only if a TNF alpha has failed or a TNF alpha cannot be tolerated. Needs to be discounted price via patient access scheme.

Maintaining remission:

- Offer azathioprine or mercaptopurine when previously used in induction strategy; or consider in those not previously receiving this
- Consider methotrexate only in those who needed it at induction, tried and did not tolerate azathioprine or mercaptopurine

No treatment – follow up:

- Share plans for follow ups
- Symptoms of relapse need to be known and what actions are required: unintentional weight loss, abdo pain, diarrhoea, ill-health
- Knowledge of how to access healthcare
- Smoking cessation

DO NOT OFFER CONVETIONAL GLUCOCORTICOSTEROIDS OR BUDESONIDE FOR MAINTAINING REMISSION

Maintaining remission after surgery:

After complete macroscopic resection (in ileocolonic Crohn's disease) within the last 3 months, consider azathioprine in combination with metronidazole – for up to 3 months post operatively
Azathioprine alone in those who are unable to tolerate metronidazole

DO NOT OFFER BIOLOGICS OR BUDESONIDE