Perioperative Management of DMARDs

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Disclosures

• Consultancy/Speakers Fees: Abbvie, BMS

• Grant income: Pfizer, BMS, UCB
A typical patient

• Maria is a 62 y.o. female with rheumatoid and osteoarthritis

• She has considerable knee pain and X-ray confirms advanced osteoarthritis

• It is agreed that the best management is **total knee arthroplasty**

• Pre-op review reveals she is taking **methotrexate** 20 mg weekly, **hydroxychloroquine** 200 mg daily, **baricitinib** 4mg daily and **prednisolone** 7.5 mg daily

• The orthopaedic surgeon asks you for your advice as to whether she should continue these medications or stop them prior to her TKA and if so, for how long?
Objectives

1. Review the current management approaches for inflammatory autoimmune diseases

2. Dispel some of the anxiety around targeted therapies and immunosuppression for the treatment of autoimmune diseases

3. Review the evidence around the risks of surgical site infection and other complications in patients receiving immunosuppressive drugs

4. Offer practical approaches to patient management in the peri-operative period.
Inflammatory Autoimmune Disease

- **Rheumatology**
  - Rheumatoid arthritis
  - Psoriatic arthritis
  - Ankylosing Spondylitis
  - Juvenile idiopathic arthritis
  - Systemic Lupus Erythematosus
  - Vasculitis

- **Dermatology**
  - Psoriasis

- **Gastroenterology**
  - Inflammatory bowel disease
Rheumatoid Arthritis

- A chronic inflammatory disease affecting synovial joints
- Estimated to affect 1% of adult population
- Untreated can lead to progressive joint damage, chronic pain, disability and premature death
- Treatment is lifelong; disease will flare if treatment stopped
Rheumatoid arthritis then...
Rheumatoid arthritis now...
Rheumatoid arthritis in adults: management

NICE guideline
Published: 11 July 2018
www.nice.org.uk/guidance/ng100
Management of Inflammatory Rheumatic Diseases

Non-Pharmacological Interventions

DIAGNOSIS

csDMARDs
  e.g. methotrexate

b/ts DMARDs
  e.g. TNFi, rituximab

Glucocorticoids

Analgesia e.g. opioids
History of Anti-Rheumatic Therapy for Rheumatoid Arthritis

8 DMARDs in 65 years
2001

- Infliximab (Remicade)
- Etanercept (Enbrel)
- Anakinra (Kineret)
- Adalimumab (Humira)
- Rituximab (Mabthera)
- Abatacept (Orencia)
- Tocilizumab (Roactemra)
- Golimumab (Symponi)
- Certolizumab (Cimzia)

2019

- Infliximab (Inflectra)
- Infliximab (Remsima)
- Infliximab (Flixabi)
- Etanercept (Benepali)
- Baricitinib (Olumiant)
- Tofacitinib (Xeljanz)
- Etanercept (Erelzi)
- Rituximab Rixathon
- Rituximab (Truxima)
- Adalimumab (Amgevita)
- Adalimumab (Imraldi)
- Adalimumab (Hulio)
- Adalimumab (Hyrimoz)

Rheumatoid arthritis:
23 new drugs in 18 years!!
Psoriatic arthritis: 18 new drugs in 18 years!!

- Infliximab (Remicade)
- Etanercept (Enbrel)
- Adalimumab (Humira)
- Golimumab (Symponi)
- Certolizumab (Cimzia)
- Ustekinumab (Stelara)
- Apremilast (Otezla)
- Secukinumab (Cosentyx)
- Infliximab (Inflectra)
- Infliximab (Remsima)
- Infliximab (Flixabi)
- Etanercept (Benefal)
- Tofacitinib (Xeljanz)
- Adalimumab (Amgevita)
- Adalimumab (Imraldi)
- Adalimumab (Hulio)
- Adalimumab (Hyrimoz)
Disease Modifying Anti-Rheumatic Therapies

DMARDs

Conventional Synthetic (cs)DMARDs

Biologic (b)DMARDs

Targeted Synthetic (ts)DMARDs

Relief of signs and symptoms
Improvement in physical function, quality of life and social and work capacity
Inhibition of structural damage to cartilage and bone.
Conventional Synthetic DMARDs

Methotrexate (PO or SC)
Hydroxychloroquine
Sulfasalazine
Leflunomide
Biologic/targeted synthetic DMARDs

- Treat disease by inducing, enhancing, or suppressing an immune response
- Engineered to target specific cells or molecules
- Used in a number of conditions
  - Autoimmune diseases
  - Cancer
- Profound impact on treatment outcomes
- Significant pharmacoeconomic issues
Cytokine Signalling Pathways in Rheumatoid Arthritis

From Choy and Panayi. NEJM, 2001
Targets of Approved Biologic DMARDs

- **Anti-cytokine Therapies**
  - TNF
  - IL-1
  - IL-6
  - IL-12/23
  - IL-17

- **B-Cell Targeted Therapies**
  - CD20

- **T-Cell Targeted Therapies**
  - CTLA4
From http://www.adipogen.com
Biologic DMARDs approved for RA

2001

- Infliximab (Remicade)
- Etanercept (Enbrel)
- Anakinra (Kineret)
- Adalimumab (Humira)
- Rituximab (Mabthera)
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2019

- Infliximab (Inflectra)
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- Infliximab (Flixabi)
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- Rituximab (Rixathon)
- Rituximab (Truxima)
- Adalimumab (Amgevita)
- Adalimumab (Imraldi)
- Adalimumab (Hulio)
- Adalimumab (Hyrimoz)
## Nomenclature

- **ximab**  
  chimeric antibody  
  infliximab, rituximab

- **umab**  
  human antibody  
  adalimumab, golimumab

- **zumab**  
  humanised antibody  
  tocilizumab

- **cept**  
  fusion proteins  
  etanercept, abatacept
Targeted Synthetic (ts) DMARDs

- A new class of targeted therapy for RA, PsA and IBD

- Janus kinase (JAK) inhibitors
  - inhibit the activity of one or more of the janus kinase enzymes (JAK1, JAK2, JAK3, TYK2), thus interfering with the JAK-STAT signalling pathway

- Tofacitinib and baricitinib currently licensed in Europe

- Daily tablet
Prescribing bDMARDs and tsDMARDs

• Must be prescribed by a rheumatologist

• Often used in combination with csDMARDs

• Usually dosed at regular intervals (daily to every few weeks)

• All biologics are prescribed by hospitals and will usually not appear on GP records/repeat prescriptions

• You must ask patients if they are also receiving a biologic drug
Rituximab (anti-CD20 antibody)
Rituximab (RTX) and rheumatoid arthritis

• Intravenous medication

• B-cell depletion is rapid but length of depletion is variable

• Dosed every 6 months or at longer, irregular intervals.

• Patients often don’t mention RTX as one of their regular medications
Surgery and DMARDs

• Most advice/evidence about peri-operative DMARD use largely relates to elective procedures and most research is in relation to elective orthopaedic procedures
Patients with RA already have an increased risk of infection, including joint infections?

- Infection has long been recognised as a cause of morbidity and mortality in RA

  2-fold greater risk of hospitalised infection
  22-fold greater risk of septic arthritis

- Complex explanations involving both disease and treatment
  - Immunological ‘ageing’
  - Pharmacological immunosuppression

Koetz et al. Proc Natl Acad Sci USA 2000;97:9203-8
Prosthetic Joint Infection

• A serious complication with a prevalence of 1 to 3 percent

• This is a **BIG DEAL** – infected prosthesis often requires removal of hardware, prolonged IV antibiotics and results in functional decline, high mortality and is expensive

• Patients with RA have 50% increased risk of prosthetic joint infection compared to patients with OA

Cordtz et al. Ann Rheum Dis 2018
What is the best way to manage immunosuppressive therapy at the time of surgery to reduce infection risk?
Peri-operative Management of DMARDs

SSI Complications Revision

Disease flare
Conventional Synthetic DMARDs

- Methotrexate (PO or SC)
- Hydroxychloroquine
- Sulfasalazine
- Leflunomide
# Methotrexate and Surgical Complications

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Intervention</th>
<th>Outcomes measured</th>
<th>Quality</th>
</tr>
</thead>
</table>
| Grennan\(^{6}\), 2001 Randomised unblinded prospective study 1-y follow-up | n=338 (group A n=88, group B n=72) Mean age (group A 61, group B 63); women (group A 82%, group B 79%) RA, orthopaedic surgery | - Group A: MTX > 6 w (mean dose 10 mg/w) before surgery, not discontinued, same dose.  
- Group B: stopped MTX (mean dose 7.5 mg/w) 2 w before, restarted 2 w after surgery | % wound morbidity  
% systemic infections  
% total infections  
% surgery complications  
% RA flares | 1b |
| Sany\(^{9}\), 1993 Randomised unblinded prospective study 8-m follow-up | n=64 (group A n=32, group B n=32) Mean age (group A 52, group B 49); women (group A 94%, group B 88%) RA, orthopaedic surgery | - Group A: MTX (mean dose 10 mg/w) > 6 w before surgery, not discontinued, same dose.  
- Group B: stopped MTX (mean dose 10 mg/w) > 1 w before | % wound morbidity  
% total infections  
% RA flares | 1b |
| Carpenter\(^{10}\), 1996 Observational prospective 1-y follow-up | n=32 (group A n=13, group B n=19) Mean age (group A 59, group B 61); women (group A 77%, group B 79%) RA, orthopaedic surgery, MTX before surgery. No concurrent AZA | - Group A: MTX (mean dose 13.1 mg/w) > 6 w before surgery, not discontinued, same dose.  
- Group B: stopped MTX (mean dose 12.5 mg/w) 2 w before | % wound infections  
% prosthesis infection  
% total infections  
% RA flares | 2b |
| Murata\(^{11}\), 2006 Observational retrospective | n=116 (group A n=48, group B n=12) Mean age (group A 62 years, group B 59 years); mostly women in both groups RA, orthopaedic surgery. No concurrent etanercept, leflunomide, surgeries for infection | - Group A: MTX (mean dose 4.3 mg/w) > 6 w before surgery, not discontinued, same dose.  
- Group B: stopped MTX (mean dose 4.9 mg/w) 2 w before. | % wound morbidity  
% total infections  
% RA flares | 2b |

y: year; RA: rheumatoid arthritis; MTX: methotrexate; mg: milligram; w: week; m: month; AZA: azathioprine.
Stop or continue MTX??

• Open label clinical trial – orthopaedic surgery
  – Randomised to stop MTX 2 weeks prior or continue
  – Third observational group of patients not receiving MTX

• Primary outcomes
  – Disease flare
  – Surgical infection
  – Revision within one year

## Better outcomes if patients continued MTX

<table>
<thead>
<tr>
<th></th>
<th>Continue MTX (n=88)</th>
<th>Pause MTX (n=72)</th>
<th>Not on MTX (n=288)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infections or surgical complications*</td>
<td>2%†</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>Flares within 6 weeks of surgery</td>
<td>0#</td>
<td>8%</td>
<td>3%</td>
</tr>
</tbody>
</table>

*Majority of complications were SSI  
†p<0.003 compared to MTX pause, p=0.026 compared to no MTX  
#p=0.04 compared to other groups  

Methotrexate Drug Interactions

• Specific warning about drug interaction between methotrexate and trimethoprim

➢ Bone marrow aplasia
What about the other csDMARDs?

- **No difference in short term outcomes** between 41 patients who withheld *leflunomide* for 4 weeks prior to surgery compared to 41 patients who continue leflunomide.

- **Hydroxychloroquine and sulfasalazine not found to be “risk factors”** for infection in the post-operative period among RA patients undergoing orthopaedic surgery.

SPECIAL ARTICLE

2017 American College of Rheumatology/American Association of Hip and Knee Surgeons Guideline for the Perioperative Management of Antirheumatic Medication in Patients With Rheumatic Diseases Undergoing Elective Total Hip or Total Knee Arthroplasty

Susan M. Goodman,1 Bryan Springer,2 Gordon Guyatt,3 Matthew P. Abdel,4 Vinod Dasa,5 Michael George,6 Ora Gewurz-Singer,7 Jon T. Giles,8 Beverly Johnson,9 Steve Lee,10 Lisa A. Mandl,1 Michael A. Mont,11 Peter Sculco,1 Scott Sporer,12 Louis Stryker,13 Marat Turgunbaev,14 Barry Brause,1 Antonia F. Chen,15 Jeremy Gililland,16 Mark Goodman,17 Arlene Hurley-Rosenblatt,18 Kyriakos Kirou,1 Elena Losina,19 Ronald MacKenzie,1 Kaleb Michaud,20 Ted Mikuls,21 Linda Russell,1 Alexander Sah,22 Amy S. Miller,14 Jasvinder A. Singh,23 and Adolph Yates17
ACR/AAHKS Guidelines

Low to moderate level of evidence

But equally **missing a few days of treatment will not result in flare** so not critical to take on day of surgery or few days after if patient not well

Should be withheld if patient receiving antibiotics for an infection

<table>
<thead>
<tr>
<th>DMARDs: CONTINUE these medications through surgery.</th>
<th>Dosing Interval</th>
<th>Continue/Withhold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methotrexate</td>
<td>Weekly</td>
<td>Continue</td>
</tr>
<tr>
<td>Sulfasalazine</td>
<td>Once or twice daily</td>
<td>Continue</td>
</tr>
<tr>
<td>Hydroxychloroquine</td>
<td>Once or twice daily</td>
<td>Continue</td>
</tr>
<tr>
<td>Leflunomide (Arava)</td>
<td>Daily</td>
<td>Continue</td>
</tr>
</tbody>
</table>
### Systemic Lupus Erythematosus

<table>
<thead>
<tr>
<th>SEVERE SLE-SPECIFIC MEDICATIONS: CONTINUE these medications in the perioperative period.</th>
<th>Dosing Interval</th>
<th>Continue/Withhold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mycophenolate mofetil</td>
<td>Twice daily</td>
<td>Continue</td>
</tr>
<tr>
<td>Azathioprine</td>
<td>Daily or twice daily</td>
<td>Continue</td>
</tr>
<tr>
<td>Cyclosporine</td>
<td>Twice daily</td>
<td>Continue</td>
</tr>
<tr>
<td>Tacrolimus</td>
<td>Twice daily (IV and PO)</td>
<td>Continue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOT-SEVERE SLE: DISCONTINUE these medications 1 week prior to surgery</th>
<th>Dosing Interval</th>
<th>Continue/Withhold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mycophenolate mofetil</td>
<td>Twice daily</td>
<td>Withhold</td>
</tr>
<tr>
<td>Azathioprine</td>
<td>Daily or twice daily</td>
<td>Withhold</td>
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<td>Cyclosporine</td>
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<td>Tacrolimus</td>
<td>Twice daily (IV and PO)</td>
<td>Withhold</td>
</tr>
</tbody>
</table>
Biologic and Targeted Synthetic DMARDs

SSI
Complications
Revision

Disease flare
Infection is leading adverse event leading to TNFi discontinuation

<table>
<thead>
<tr>
<th>AE</th>
<th>Total with AE, no. (% of AEs leading to discontinuation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection</td>
<td>284 (27)</td>
</tr>
<tr>
<td>Systemic drug reaction</td>
<td>151 (15)</td>
</tr>
<tr>
<td>Rash</td>
<td>103 (10)</td>
</tr>
<tr>
<td>Generally unwell</td>
<td>60 (6)</td>
</tr>
<tr>
<td>Cytopenias</td>
<td>38 (4)</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>38 (4)</td>
</tr>
<tr>
<td>Malignancy</td>
<td>34 (3)</td>
</tr>
<tr>
<td>Headache</td>
<td>25 (2)</td>
</tr>
<tr>
<td>Injection-site reaction</td>
<td>22 (2)</td>
</tr>
<tr>
<td>Abnormal liver enzyme levels</td>
<td>17 (2)</td>
</tr>
<tr>
<td>Ischemic heart disease</td>
<td>14 (1)</td>
</tr>
<tr>
<td>Nonhealing skin ulcer</td>
<td>14 (1)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>13 (1)</td>
</tr>
<tr>
<td>Vasculitis</td>
<td>10 (1)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>10 (1)</td>
</tr>
<tr>
<td>Cough</td>
<td>8 (1)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>8 (1)</td>
</tr>
<tr>
<td>Lupus-like reaction</td>
<td>8 (1)</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>6 (1)</td>
</tr>
<tr>
<td>Chest pain</td>
<td>6 (1)</td>
</tr>
</tbody>
</table>

15% of patients stopped 1st TNF within 15 months for adverse event
TNFi: All-site serious infection in increased compared to csDMARDs (BSRBR-RA)

Overall risk of serious infection is increased 20% with TNFi compared to csDMARDs.
The risk of infection with TNFI is highest in the first 6 months of treatment, then decreases to no increased risk over time compared to csDMARDs.
High probability of disease flare if bDMARDs are stopped

- Recent systematic review found that 62% of patients previously in remission will flare once treatment stopped.

- Mean follow-up across studies was 21 months but flare can start within a few weeks (depending on drug)
Data Challenges

• No randomised clinical trials.

• Small observational studies or administrative/claims data

• Stop versus continue??
  
  – Defined based on a prescription being issued within 2-4 weeks of surgery (or prescription that covers peri-operative period)
  
  – But, impossible to capture what actually happened

• Comparing to patients “no longer receiving” biologics may not be valid in terms of comparability
For example:

- 31 patients who underwent elective foot or ankle surgery
- All told to continue their usual anti-rheumatic therapies.
- No difference in infectious complications between 15 patients who had received TNFi compared to 16 who were not...

And another...

- Large cohort study using natural variation in practice (1219 procedures).

- Cohort 1 did not use anti-TNF; Cohort 2 used anti-TNF but had either stopped (2A) or continued anti-TNF preoperatively (2B)

- Cut-off point set to 4 times the half-life time of the drug

- No difference in SSI rate with continuous TNFi use

  Odds Ratio 1.5 (95% CI 0.43-5.2)

- BUT, local protocol also suggested all patients should stop 2 weeks in advance which was not recorded.

Perioperative Timing of Infliximab and the Risk of Serious Infection After Elective Arthroplasty

**Serious infection within 30 days**

<table>
<thead>
<tr>
<th>Infliximab stop time</th>
<th>OR (95% CI)</th>
<th>Higher infection risk (vs 8-12 weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 4 weeks</td>
<td>0.90 (0.60, 1.34)</td>
<td></td>
</tr>
<tr>
<td>4-8 weeks</td>
<td>0.95 (0.62, 1.36)</td>
<td></td>
</tr>
<tr>
<td>8-12 weeks</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>12-16 weeks</td>
<td>1.06 (0.54, 2.05)</td>
<td></td>
</tr>
<tr>
<td>≥ 16 weeks</td>
<td>1.22 (0.49, 3.02)</td>
<td></td>
</tr>
</tbody>
</table>

**Prosthetic joint infection within 1 year**

<table>
<thead>
<tr>
<th></th>
<th>HR (95% CI)</th>
<th>Higher PJI risk (vs 8-12 weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infliximab stop time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 4 weeks</td>
<td>0.98 (0.52, 1.87)</td>
<td></td>
</tr>
<tr>
<td>4-8 weeks</td>
<td>0.89 (0.50, 1.60)</td>
<td></td>
</tr>
<tr>
<td>8-12 weeks</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>12-16 weeks</td>
<td>0.76 (0.30, 1.92)</td>
<td></td>
</tr>
<tr>
<td>≥ 16 weeks</td>
<td>0.70 (0.18, 2.78)</td>
<td></td>
</tr>
</tbody>
</table>
Not all studies have been negative...

- Meta-analysis of 5 studies of TNFi in rheumatoid arthritis (low to medium quality)
  - 2743 (~50/50 continuing/discontinuing)
    - Less SSI in groups who discontinued TNFi
      - 3% versus 6%, Odds Ratio 0.6 (95% CI 0.4-0.90)
    - More flares in groups who discontinued TNFi
      - 20% versus 3%, Odds Ratio 5.0 (95% CI 1.1-24.8)

ACR/AAHKS Guidelines

• Withhold all biologic medications prior to surgery and schedule surgery at the end of a dosing cycle.

• Resume medications a minimum of 14 days after surgery in the absence of wound healing problems, surgical site infection or systemic infection and all staples, sutures removed

When to restart??

• No evidence regarding the optimal time to restart biologic DMARDs in the perioperative setting.

• The guidance is based on standard precautions: biologics should not be used in patients with active infection or at high risk, such as those with an “open” wound.
<table>
<thead>
<tr>
<th>BIOLOGIC AGENTS: STOP these medications prior to surgery and schedule surgery at the end of the dosing cycle. RESUME medications at minimum 14 days after surgery in the absence of wound healing problems, surgical site infection, or systemic infection.</th>
<th>Dosing Interval</th>
<th>Schedule Surgery (relative to last biologic agent dose administered) during</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adalimumab (Humira)</td>
<td>Weekly or every 2 weeks</td>
<td>Week 2 or 3</td>
</tr>
<tr>
<td>Etanercept (Enbrel)</td>
<td>Weekly or twice weekly</td>
<td>Week 2</td>
</tr>
<tr>
<td>Golimumab (Simponi)</td>
<td>Every 4 weeks (SQ) or every 8 weeks (IV)</td>
<td>Week 5 Week 9</td>
</tr>
<tr>
<td>Infliximab (Remicade)</td>
<td>Every 4, 6, or 8 weeks</td>
<td>Week 5, 7, or 9</td>
</tr>
<tr>
<td>Abatacept (Orencia)</td>
<td>Monthly (IV) or weekly (SQ)</td>
<td>Week 5 Week 2</td>
</tr>
<tr>
<td>Certolizumab (Cimzia)</td>
<td>Every 2 or 4 weeks</td>
<td>Week 3 or 5</td>
</tr>
<tr>
<td>Rituximab (Rituxan)</td>
<td>2 doses 2 weeks apart every 4-6 months</td>
<td>Month 7</td>
</tr>
<tr>
<td>Tocilizumab (Actemra)</td>
<td>Every week (SQ) or every 4 weeks (IV)</td>
<td>Week 2 Week 5</td>
</tr>
<tr>
<td>Anakinra (Kineret)</td>
<td>Daily</td>
<td>Day 2</td>
</tr>
<tr>
<td>Secukinumab (Cosentyx)</td>
<td>Every 4 weeks</td>
<td>Week 5</td>
</tr>
<tr>
<td>Ustekinumab (Stelara)</td>
<td>Every 12 weeks</td>
<td>Week 13</td>
</tr>
<tr>
<td>Belimumab (Benlysta)</td>
<td>Every 4 weeks</td>
<td>Week 5</td>
</tr>
</tbody>
</table>

Tofacitinib (Xeljanz): STOP this medication 7 days prior to surgery. Daily or twice daily 7 days after last dose |
Glucocorticoids

Rheumatologists use a lot of them, even though we will tell you we don’t
Glucocorticoids

• Commonly used although most rheumatologists attempt to minimise dose

• Higher doses in SLE/vasculitis compared to RA

• Most patients on 5-10mg/day but recent years has seen less oral prednisolone and high use of IM depo injections

• Some patients will have had IM injections regularly if disease has been hard to control or limited other options
Glucocorticoids

Main risk for surgery:

1. Post-operative infection risk
2. Risk of haemodynamic instability
Risk of infection is significant

• Risk is less if daily dose does not exceed 10mg/day

• Compared to patients who had not received steroids within 90 days of surgery, patients receiving 10mg or more had:
  
  – Higher incidence of hospitalised infection (13 versus 7%)
  – Higher incidence of prosthetic joint infection (4 versus 2%)

Glucocorticoids also:

- Impair wound healing
- Increase friability of skin and superficial blood vessels
- Increase risk of fracture, GI ulcer, etc
Inflammatory Bowel Disease

• Evidence quality equally poor and mixed

• Where possible, delay surgery to allow for temporary discontinuation of biologic therapies
  
  – BSG: Safe duration is unknown: 8 weeks for infliximab and 4 weeks for adalimumab? Less critical for UC than CD?

• If not possible, consider use of diverting stomas to avoid anastomotic complications but biologic use alone should not be determining factor

Lamb et al. Gut 2019 Epub
Take home messages

• Autoimmune inflammatory diseases better managed but degree and use of immunosuppression has increased

• Growing list of biologic and advance targeted therapies which will not appear on GP prescription list

• Continue standard DMARDs but discontinue biologics

• Remember to ask about rituximab

• Rheumatologists are generally nice people and are happy to be consulted on the management of their patients