Approach to Treatment and Follow-up of Lupus Nephritis

Arenn Jauhal
PGY5 Nephrology Fellow
Overview

• Diagnosis
• Immunosuppression
• Follow-up
• Tips
• Summary
Goals

• Recognize
  • Toxicity of treatment
  • Flare of the disease
Diagnosis

• Previous rheumatological diagnosis of SLE
• Clinical presentation
  • Rashes
  • Arthritis
  • Mouth ulcers
  • Hair loss
• Serologies
  • ANA
  • dsDNA
  • C3/C4
Lupus Nephritis

• Maybe hematuria/proteinuria
  • Class I and II
• More hematuria/proteinuria +/- increased Creatinine
  • Class III and IV
• Nephrotic Syndrome
  • Class V
• Very low kidney function
  • Class VI
Immunosuppression

• Disease-control
  • Hydroxychloroquine

• Induction
  • 3-6 months
  • Corticosteroids
  • Cyclophosphamide
  • MMF

• Maintenance
  • 1-3 years
  • MMF
  • Azathioprine
  • Coritcosteroids
Immunosuppression

• Hydroxychloroquine (HCQ)
  • Aka Plaquenil
  • Common S/Es:
    • Gastrointestinal upset
    • Headaches
    • Lightheadedness
  • Rare S/Es:
    • Retinal toxicity
    • Rash
    • Photosensitivity
    • Myopathy
    • Seizures/psychosis
  • Annual eye exam required
Immunosuppression

- Corticosteroids

**Adverse effects**

- Occur with prolonged use of high doses
- Cushing’s disease

**Psychiatric**
- Sleep disturbance/activation
- Mood disturbance
- Psychosis

**Skin/soft tissue**
- Cushingoid appearance
- Abdominal striae
- Acne
- Hirsutism
- Oedema

**Neurologic**
- Neuropathy
- Pseudomotor cerebri

**Cardiovascular**
- Hypertension

**Endocrine**
- Diabetes mellitus
- Adrenal cortex suppression

**Immunologic**
- Lymphocytopenia
- Immunosuppression
- False-negative skin test

**Ophtalmic**
- Cataract
- Narrow-angle glaucoma

**Developmental**
- Growth retardation

**MSK**
- Osteoporosis
- Aseptic necrosis of bone
- Myopathy
Side Effects of Corticosteroids
Immunosuppression

• Corticosteroids
  • Stomach protection
    • H$_2$R blocker or PPI
  • Bone protection
    • Calcium
    • Vitamin D
    • ?Bisphosphonate
  • ?PJP PNA prophylaxis
    • Septra
Immunosuppression

- Cyclophosphamide
  - S/Es:
    - Infertility (men and women)
    - Myelosuppression
    - Hemorrhagic cystitis
    - Malignancy
      - Non-melanoma skin cancer
      - Bladder
      - Leukemia
    - Alopecia
    - Infection
Immunosuppression

- Cyclophosphamide
  - Monitoring
    - Biweekly CBCs
    - Periodic urine cytology in future
    - Contraception
Immunosuppression

- MMF
  - Aka CellCept
  - Antimetabolite
- S/Es
  - Gastrointestinal upset
  - Leukopenia
  - Pregnancy loss/congenital malformations
  - Pain/fever
  - UTI
Immunosuppression

• MMF
  • Monitoring
    • CBC
    • Contraception
Immunosuppression

• AZA
  • Antimetabolite
  • S/Es
    • Bone marrow depression
    • Diarrhea
    • Hepatotoxicity
    • Drug interaction with Allopurinol
Immunosuppression

• AZA
  • Monitoring
    • CBC
    • Liver enzymes
Monitoring

- Renal function
- Proteinuria
- Clinical
- Serologies
- Re-biopsy
Monitoring

- Renal function
  - Assess response of treatment with Cr change
Monitoring

• Proteinuria
  • Urine ACR
  • Urine PCR
  • 24 hour urine collection
Monitoring

- When should I order a 24 hour urine protein collection?
  - Most accurate method if performed correctly
  - If UACR/PCR rising
  - Always include a 24 hour creatinine to assess completeness
Monitoring

- Proteinuria

**Table 27 | Definitions of response to therapy in LN**

**Complete response:** Return of SCr to previous baseline, plus a decline in the uPCR to $<500 \text{ mg/g} ( <50 \text{ mg/mmol})$.

**Partial response:** Stabilization ($\pm 25\%$), or improvement of SCr, but not to normal, plus a $\geq 50\%$ decrease in uPCR. If there was nephrotic-range proteinuria ($uPCR \geq 3000 \text{ mg/g} [\geq 300 \text{ mg/mmol}]$), improvement requires a $\geq 50\%$ reduction in uPCR, and a $uPCR < 3000 \text{ mg/g} [ <300 \text{ mg/mmol}]$.

**Deterioration:** There is no definition of deterioration in LN to define treatment failure that has been tested prospectively as an indication to change in initial therapy. A sustained 25% increase in SCr is widely used but has not been validated.
Monitoring

• Clinical
  • Symptoms of Lupus
  • Previous symptoms of a flare
    • General
    • Rheum
    • Genitourinary
    • Cardiovascular
    • Respiratory
Monitoring

- Serologies
  - C3/C4
  - dsDNA
  - ANA
Monitoring

- When to consider another biopsy?
  - Failure to achieve CR or PR 1-2 years after treatment
  - Sudden worsening of renal function or proteinuria
Tips

• Are they adherent to treatment?
• Did they have a previous response to immunosuppression?
• Did they have previous adverse effects to immunosuppression?
Tips

• Pregnancy considerations
  • Delay until in remssion
  • Do not use **ACEI/ARB**, **cylophosphamide**, **MMF**
  • HCQ should be continued
  • AZA okay
  • ASA
Summary

• Immunosuppression
  • Cyclophosphamide
    • Infertility
    • Cancers
  • MMF
    • GI
    • leukopenia
• AZA
  • Bone marrow suppression
  • hepatotoxicity
Summary

• Follow-up
  • Renal function
  • Proteinuria
  • Serologies
Clinic Nurses

DOES 99% OF THE WORK

HAS NO IDEA WHAT'S GOING ON THE WHOLE TIME

Kris Poinan

SAYS HE'S GOING TO HELP BUT HE'S NOT

Peter Birks

DISAPPEAR AT THE VERY BEGINNING AND DOESN'T SHOW UP AGAIN TIL THE VERY END

Arenn Jauhari

KCC