IVIG (Gamunex, Gammaguard, others)[26]

Initial Visit:

History and Physical

- **Those predisposed to acute renal failure:**
  - **pre-existing renal insufficiency,**
  - **diabetes mellitus,**
  - **older than 65 years,**
  - **volume depletion,**
  - **sepsis,**
  - **taking nephrotoxic drugs,**
  - paraproteinemia
- **History of thrombotic event – stroke, DVT**, etc.?
- **Moderate to severe heart failure**
- **Predisposition to thrombotic events**:
  - **impaired cardiac output,**
  - prolonged periods of **immobilization**,
  - atherosclerosis,
  - multiple cardiovascular risk factors,
  - advanced age (i.e., older than 65 years),
  - coagulation disorders,
  - known or suspected hyperviscosity, including:
    - cryoglobulins,
    - fasting chylomicronemia/markedly high triglycerides,
    - monoclonal gammopathies
- History of migraine headaches (risk of aseptic meningitis)

- Live vaccine within past three months

Labs

- **CBC with differential**
- **CMP**
- **Serum IgA**
- **Lipid profile (especially triglycerides)**
- INR
- aPTT
- Cryoglobulins
- SPEP
- Hepatitis B screen: Hepatitis B sAg, Hepatitis B sAb, Hepatitis B cAb (for baseline)
- Hepatitis C ELISA screen (for baseline)
- HIV (optional)
- Pneumovax (optional)

Administration Considerations

- **If administration is unavoidable:**
    - **Minimum infusion rate in high creatinine or thrombotic risk patients**
    - **Hydrate in renal insufficiency**
- **Epinephrine, antihistamine, acetaminophen, methylprednisolone, and crash cart at bedside as anaphylaxis or hypersensitivity precaution**
- **Gammunex is not compatible with saline - dilute with 5% dextrose in water**
- **Premedicate with acetaminophen and/or antihistamine, and/or corticosteroids (we typically delete the corticosteroid)**

Counseling/Other

- **Acute renal failure**, especially with sucrose-containing products
- **Hemolytic anemia** within a few days of infusion
- **Aseptic meningitis** syndrome
    - Especially with high doses, rapid infusion, and history of migraine (onset in several hours up to two days after infusion)
    - Symptoms: severe headache, nuchal rigidity, drowsiness, fever, photophobia, painful eye movement, nausea, and vomiting.
    - CSF studies are often positive for pleocytosis to several thousand granulocytic cells per cc mm and elevated protein levels to several hundred mg/dL
- **Risk of thrombotic event**
- **Anaphylaxis** and other infusion reactions
- **May contain infectious agents**, e.g. viruses and prions; made from large pools of human plasma
- Monitor volume and color of urine from start of first infusion to five days following last infusion
- Hyperproteinemia, increased serum viscosity, and hyponatremia (pseudohyponatremia)
- Transfusion Related Acute Lung Injury (TRALI) - non-cardiogenic pulmonary edema with severe respiratory distress 1-6 hours after infusion
    - If TRALI is suspected, test for anti-neutrophil antibodies in the patient and product serum.
- Fluid overload - especially high doses over fewer days
- May interfere with response to live viral vaccines (give vaccine more than 3 months before or 4 half-lives after)
- Non-live vaccines three months prior to first dosing if possible
- May confound results of serological testing

Follow-up Visit:

History and Physical

- Is there sustained clinical efficacy?
- Brown urine? Call doctor if urine is brown.
- Any live vaccines in past month?
- Any household members getting live vaccine?
- Other interval history

Labs

- **Prior to every infusion: CMP, CBC**