IVIG (Gamunex, Gammaguard, others)\textsuperscript{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