IVIg vs SCIg
How to Choose?

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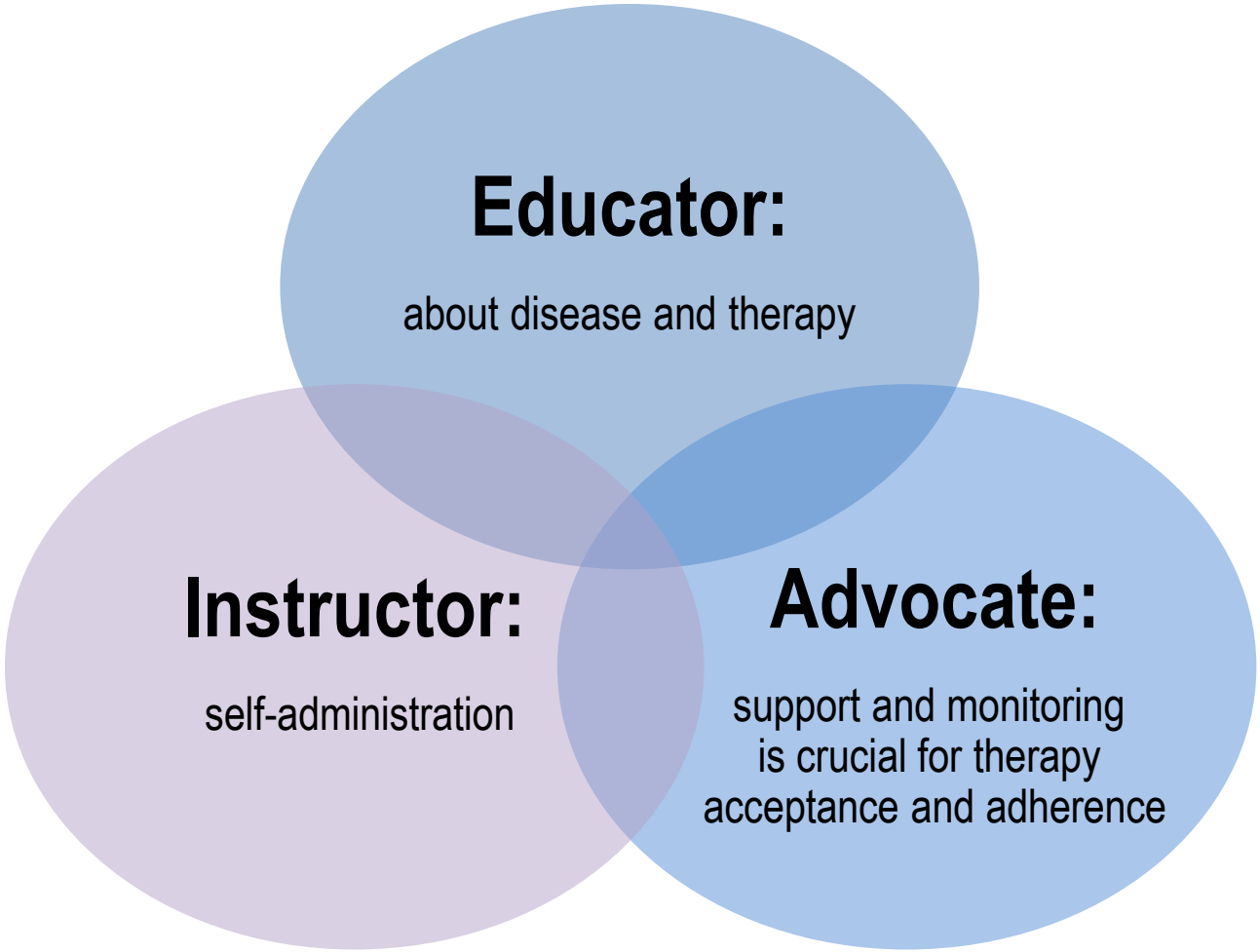
Choices for Administration

- **Intravenous IVIg**
- **Subcutaneous SCIg**

What should you know to help you choose?

Nurse's Role in Training Is Vital



Burton J et al. *Prof Case Manage.* 2010;15:5-14.

Creating a Positive Process for Therapy Management: The 5 Cs

- **C**hronic care approach
  - Life long disease management
- **C**omprehensive treatment
- **C**ollaborative partnership
- **C**ommunication
  - With patient, family, and other health care providers
- **C**hoice

Factors for Consideration of Therapy Options (IVIg vs. SCIg)

- IVIg vs. SCIg
  - Right therapy for the patient
  - Explain differences between therapies
  - Discuss benefits of each therapy
  - Discuss what to expect during an infusion
    - Length of infusion
    - Adverse events
    - Necessary equipment
  - Discuss adverse events associated with each therapy
  - Involve patient and/or family in the decision
  - Discuss financial implications for each therapy
  - Discuss lifestyle implications for each therapy

1. Chapel HM et al. *J Clin Immunol*. 2000;20:94-100.
2. Berger M. *Clin Immunol*. 2004;112:1-7.
3. Immune Deficiency Foundation Nursing Advisory Committee. http://www.primaryimmune.org/publications/book_nurse/Nurses_Guide.pdf. Accessed August 27, 2008.

Which Route to Use?

Subcutaneous (SCIg)	Intravenous (IVIg)
No venous access required	Venous access required.
Convenient and well tolerated by most patients.	Convenient and well tolerated by most patients
Slow administration and gradual absorption reduces severe headaches and other adverse events; Smaller volumes per infusion requires more frequent dosing (usually weekly)	Peak levels or rapid shifts in IgG level may result in adverse event; Patient may need medications to manage side effects before or after infusions; Ability to give large volumes per infusion allows intermittent dosing (every 21-28 days)
Maintains more consistent IgG levels and eliminates low troughs	Variability in IgG level or “Wear off “ effect may result in fatigue between infusions
Facilitates self or home infusion, increasing patient autonomy – may improve patient’s self-image and sense of control	Patients may need to travel to receive infusion therapy or have trained healthcare professional in the home
Systemic side effects are rare, but local reactions including redness, swelling and itching are frequent. Pre and post medications are not usually required	Intrainfusion adverse effects are possible including chills, rigors, nausea, subjective sense of dis-ease, back ache. Post infusion adverse effects can include headache, malaise, fatigue. May require pre and post medications to prevent adverse effects

Berger M. *Clin Immunol.* 2004;112:1-7.

IVIg Administration

Advantages

- Once a month dosing
- Quick reconstitution of new patients into therapeutic range
- Administer larger doses

Disadvantages

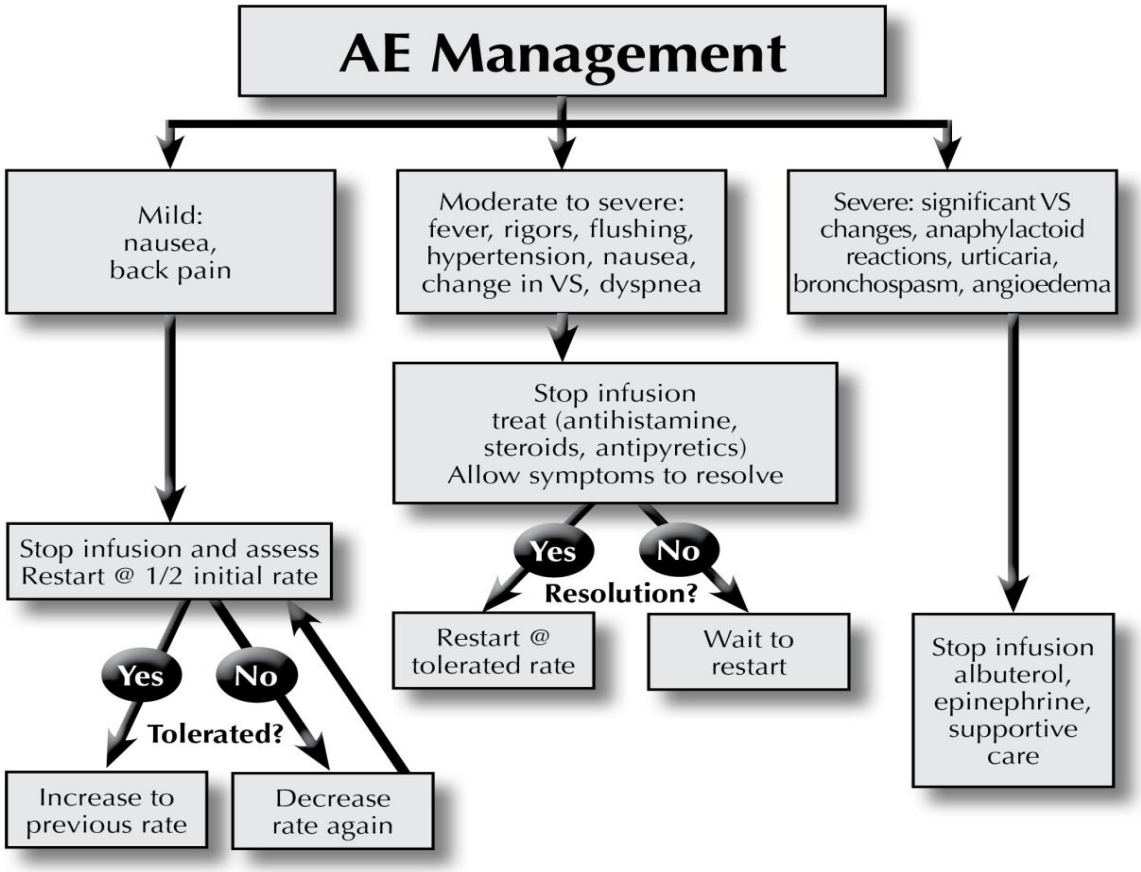
- Time loss from school/work
- Infusion related reactions
- Infusion "blues

Berger M. *Clin Immunol*. 2004;112:1-7.

Safety of IVIg

- AE occur in ~5% of patients.
- Infusion related events
  - Chills, nausea, hypotension, arthralgia, myalgia, fatigue, back pain, headache
- Infusion related AE more common in adults receiving first infusion for PID.
  - Uncommon when IVIg used for immune modulation
  - Spontaneously resolves with subsequent infusions

IVIg AE Management



SCIg Administration

What is it?

- Infusion of IgG into subcutaneous tissue using an ambulatory infusion pump or syringe driver
- Weekly dose = ¼ monthly IVIg dose but can be administered more frequently to meet patient needs
- Can be self-administered

Advantages

- Convenient and well tolerated by most patients
- Venous access not required
- Gradual absorption decreases rapid large swings in serum IgG, reduces severe headaches and other adverse events, and maintains more consistent IgG levels
- Facilitates self- or home infusion

Disadvantages

- Requires frequent dosing due to relatively small volume per infusion
- Ability to self-infuse requires reliable and adherent patient

Berger M. *Clin Immunol*. 2004;112:1-7.

SCIg: Pump vs Push

- SCIG is usually given through a programmable infusion pump, but there is an option of administering SCIG via a rapid subcutaneous push technique.

PUMP	PUSH
Full dose once a week	Smaller dose multiple times a week
25 mL per site	3 to 20 mL per site
1-4 sites	1 -2 site
60 mL syringe	5, 10, 20 mL syringe
24, 26, 27 gauge infusion site tube	23-25 gauge butterfly needle

Shapiro, R. (2010). J. Clin Immunol 307
Children's Hopstial & Regional Medical Cente logy (2007)
Sussman&Associates, Immunology (2010)

Practical Dosing For Push

Weekly Dose	5 g/25 ml	6 g/30 ml	7g/35 ml	8 g/40 ml	10 g/50 ml
1 day/week	25	30	35	40	50
2 days/week	10, 15	15, 15	15, 20	20, 20	25, 25
3 days/week	10, 10, 5	10	15, 10, 10	20, 10, 10	20, 20,10
4 days/week	10, 5, 5, 5	10, 10, 5, 5	10, 10, 10, 5	10	20, 10, 10, 10
5 days/week	5	10, 5, 5, 5, 5	10,10, 5, 5, 5	10, 10, 10, 5, 5	10
6 days/week		5	10, 5, 5, 5, 5, 5	10, 10, 5, 5, 5, 5	10, 10, 10, 10, 5, 5
7 days/week			5	10, 5, 5, 5, 5, 5, 5	10, 10, 10, 5, 5, 5, 5

Or, virtually any other permutation the patient and prescriber can devise, including every 5 days, every other week, and so on…..

The KEY is to find something with which "works" for the individual patient!

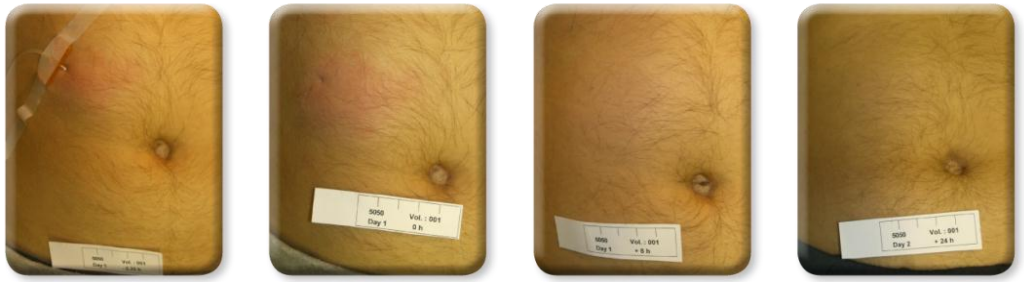
SCIg

- Fewer Administration Associated Adverse Events
  - Fewer headaches, rigors, and chills.
- Stable pharmacokinetics
  - Eliminates IgG Peaks and Troughs
  - Less end of dosing fatigue
  - IgG level that is 10-20% higher than monthly troughs on IVIG
  - With increased steady state IgG level SCIG patients often have a decreased rate of infections
  - Frequency of infections decreases as the serum IgG level increases
- Easier access and greater patient independence
- 92% of patients have local injection site reactions
  - Decreases over time.
  - Primarily puritis, burning, and erythema.

SCIg Injection-Site Reactions

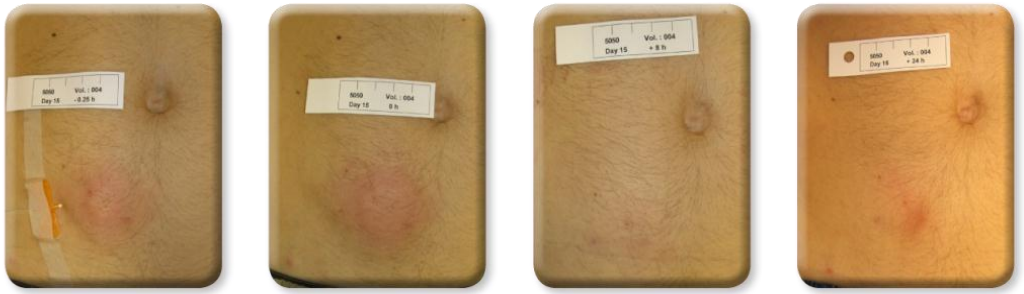
- Initial expected adverse effects
  - Variable presentation
    - Redness
    - Swelling
    - Discomfort
    - Rash
    - Blanching of site (looks white)
    - Itching

Mild



15 minutes prior to end of infusion | End of infusion | 8 hours post infusion | 24 hours post infusion

Moderate



15 minutes prior to end of infusion | End of infusion | 8 hours post infusion | 24 hours post infusion

Data on file, CSL Behring: King of Prussia, PA; 2011.

Troubleshooting SCIG Site Reactions

•**Injection-site reaction** Blanching •Redness/Rash •Itching •Discomfort •Swelling	•Assess for tape allergy; change to paper/hypoallergenic tape •Assess size–choose a needle size that is consistent with volume being infused •Assess length of catheter–may be too short and fluid may be leaking into intradermal layer •Assess site location–may be too close to muscle •Decrease rate of infusion or decease volume per site •Avoid tracking IgG through the intradermal tissue by not allowing drops of IgG on needle tip prior to needle insertion •Assess appropriateness of rotating sites •Consider use of topical anesthetic ointment
Leaking at catheter site	•Assess catheter; ensure it is affixed securely and fully inserted •Assess placement–may be in location that is subject to movement; advise regarding selection of site •Assess length of catheter–may be too short; suggest change •Assess infusion volume–amount per site may be too great; adjust volume •Assess rate of infusion; adjust rate
Extreme discomfort with needle	•Assess needle length–may be too long and irritating abdominal wall •Try catheter that allows introducer needle to be removed, leaving indwelling flexible cannula catheter •Try ice or topical anesthetic cream prior to insertion
Long infusion time	•Assess infusion preparation–Hizentra is ready to use at room temperature •Assess volume per site, rate of infusion, and number of sites, or adjust infusion regimen •Check equipment for pump setting, correct selection of tubing size and length to match infusion rates; check pump function, battery function, etc •Arrange observation of patient technique (specialty pharmacy provider or office visit) •Remove and discard catheter that demonstrated blood return; use new set (notify supplier of need for replacement)
Blood return observed	•Remove and discard catheter that demonstrated blood return; use new set (notify supplier of need for replacement)

Conclusions

- Nurses are vital in the therapeutic management process of PIDD patients.
- Immunoglobulin replacement therapy is lifelong treatment for management of PIDD.
- Involving patients and families in the treatment option decision allows for increased adherence and compliance.
- Different routes of administration are available and can be implemented in different clinical scenarios.