Background

- Intravenous immune globulin (IVIG) is used in the treatment of many immunodeficiency and autoimmune disorders
- Primary humoral immunodeficiencies
- Idiopathic thrombocytopenia purpura (ITP)
- Acute rejection of transplanted organ
- Guillain-Barré syndrome
- Myasthenia gravis
- IVIG products vary by concentration, immunoglobulin A (IgA) content, and sucrose content
- Product selection is driven by patient co-morbidities such as acute renal failure, volume status, and IgA hypersensitivity
- IVIG treatment regimens are often weight-based, but no consensus exists regarding the appropriate weight to use for dose calculations (total, ideal, or adjusted weight)
- Currently, at our institution, IVIG is ordered via a computerized prescriber order entry (CPOE) placeholder which requires prescribers to answer the following questions:
  1. Is the patient IgA sensitive? No
  2. Is patient fluid restricted? No
  3. Select one IVIG regimen:
     a. One time dose – Enter specified dose in comments
     b. 0.4 g/kg/day for 5 days
     c. 0.4 g/kg/day for 4 days
     d. 1 g/kg/day for 2 days
  4. Does the patient require specific infusion directions?

Objective

- Assess the appropriateness of product selection by pharmacists based on pre-specified answers in the IVIG placeholder order
- Characterize pharmacist practices in calculating weight-based IVIG doses
- Evaluate the potential cost savings by standardizing dose calculation practices in those physicians

Methods

- The study was reviewed by the Institutional Review Board (IRB) at Beaumont Health System, which serves as the Institutional Review Board (IRB)
- All doses of IVIG administered between January 1, 2012 and May 21, 2013 were reviewed

Inclusion Criteria:

- Patients ≥ 18 years of age
- Received at least one dose of IVIG as an inpatient at Beaumont Hospital, Royal Oak

Exclusion Criteria:

- Missing IVIG CPOE placeholder order

IVIG order and patient information were collected retrospectively from the electronic medical record (EPR; OneChart®)

Data collected:

- Demographic information
- Total (TBW), ideal (IBW), and adjusted weight (ABW) if applicable
- If TBW > 30% over IBW (obese), ABW calculated as 0.4 (TBW-IBW) + IBW
- Renal function (BUN and Scr)
- Prescriber answers to IVIG pharmacist-placeholder questions:
  - Documented IgA sensitive status
  - Fluid restriction status
  - Dose regimen ordered or prescriber-specified dose
  - Final IVIG product selected and dose dispensed
  - IVIG wholesaler acquisition prices (WAC)
- Descriptive statistics were utilized to analyze data

Results

- One hundred thirty-eight IVIG regimens were ordered during 126 patient encounters
- TBW was used to calculate all weight-based IVIG regimens
- 67 patients (53.2%) were ≥ 30% above IBW (obese) and qualified for ABW calculation

Conclusions

- Hematologic conditions (49%) were the most common indication for IVIG use at our institution.
- The majority (95.7%) of pharmacist product selection was appropriate based on answers provided by prescribers in the placeholder order
- Significant cost savings may be achieved by utilizing ABW for IVIG dose calculations in obese patients

Limitations

- Non-randomized, retrospective study design
- Product availability, volume dispensed, and dose rounding practices were not evaluated
- Product selection was categorized as inappropriate when documentation was missing or incomplete

Future Directions

- Presentation of results to the appropriate multidisciplinary leadership
- Development of a new policy to establish the use of ABW in IVIG dose calculations in obese patients

References

- Pierce LR, Jain N. Meals linked with the use of intravenous immunoglobulin. JAMA Intern Med 2014;174(2):210–211

DISCLOSURES

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