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**Evaluation of intravenous immunoglobulin (IVIG) utilization after the implementation of indication and dosing protocol at a community health system.**

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**OBJECTIVE**

- This study was conducted to evaluate the patient landscape of IVIG use within our community health system, both before and after protocol implementation. Our goals were to identify potential changes with the indication for use along with any prescribed dosing decreases while under protocol.

**BACKGROUND**

- Intravenous Immunoglobulin (IVIG) serves as a therapeutic option for a variety of disease states which stem from immunodeficiency or inflammatory reactions.1
- IVIG currently holds 7 different FDA-approved indications; however, there are many off-label uses of IVIG with varying levels of clinical evidence and proven efficacy.1
- Standard dosing of IVIG varies by indication, ranging from 0.2-2 g/kg.2
- Pricing was evaluated using a standardized product (Gammagard 10%) due to the vast number of patient administrations in the OP setting.3
- The overall average dose was slightly lower but was more prominent after separating inpatient, acute use from outpatient, chronic use.
- Due to limitations with defining a single, specific associated diagnosis or indication, no specific conclusions can be drawn on potential impact to specific disease states or areas.
- The use of IVIG restriction protocols has the potential for major cost-savings and adherence.4
- However, success is highly dependent upon provider dosing adjustments and adherence.

**METHODS**

- Retrospective, system-wide, cohort study comparing two separate 18-month periods spanning from January 2018 to June 2019 and July 2019 to December 2020.
- Parkview Health System implemented a restrictive dosing and indication protocol for use of IVIG starting in July of 2019.
- The patient population consisted of both inpatient (IP) and outpatient (OP) hospital-based infusion clinics who had EHR documentation of IVIG administrations.
- The first group represented standard pre-protocol utilization of IVIG (pre-protocol), whereas the second group was dictated by our hospital's restrictive use policy (post-protocol).
- All data was extracted from the electronic health record (EHR) and manually validated. The data was evaluated via descriptive statistics.

**RESULTS**

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Pre-Protocol</th>
<th>Post-Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patients</td>
<td>182</td>
<td>182</td>
</tr>
<tr>
<td>Number of Administrations</td>
<td>2,926</td>
<td>1,454</td>
</tr>
<tr>
<td>Age (yrs) (mean ± SD)</td>
<td>61.8 ± 15.2</td>
<td>60.7 ± 15.5</td>
</tr>
<tr>
<td>Female</td>
<td>801 (66.4%)</td>
<td>917 (63.1%)</td>
</tr>
<tr>
<td>Height (cm) (mean ± SD)</td>
<td>161.6 ± 13.3</td>
<td>160.9 ± 11.5</td>
</tr>
<tr>
<td>Actual Body Weight (kg) (mean ± SD)</td>
<td>62.2 ± 22.5</td>
<td>63.1 ± 21.75</td>
</tr>
<tr>
<td>Median Admin/Patient (Range)</td>
<td>4 (1-7)</td>
<td>5 (1-7)</td>
</tr>
<tr>
<td>Inpatient (IP)</td>
<td>665 (71.7%)</td>
<td>1,133 (77.9%)</td>
</tr>
<tr>
<td>Outpatient (OP)</td>
<td>40 (3.2%)</td>
<td>32 (22.1%)</td>
</tr>
<tr>
<td>Total Grams IVIG (g)</td>
<td>49,068</td>
<td>59,434</td>
</tr>
</tbody>
</table>

**DISCUSSION & CONCLUSIONS**

- We expected to observe a decrease in total grams of IVIG utilization between pre- and post-protocol populations but saw an increase in overall use and administrations.
- The overall average dose was slightly lower but was more prominent after separating inpatient, acute use from outpatient, chronic use.
- Chronic-use IVIG patients are typically seen in the OP setting and tend to be stable on a previously determined regimen, so dose decreases under new dosing protocols are unlikely in the OP setting. This was confirmed in our review as the average total dose was similar in the pre- and post-protocol outpatient doses.
- General medicine, oncology, neurology, and emergent care are locations with the greatest utilization of IVIG and greatest opportunity for dosing optimization.

**REFERENCES**