INTRODUCTION

- Fulfilled neutropenia (FN) is a common and potentially life-threatening side effect of myelosuppressive chemotherapy.
- Pegfilgrastim prophylaxis reduces the incidence of FN and should be administered at least 24 hours after myelosuppressive chemotherapy.
- Pegfilgrastim can be administered using:
  1. On-body injector: applied to the patient's skin (abdomen or back of arm) at the end of chemotherapy, and pegfilgrastim is automatically administered approximately 27 hours later.
  2. Prefilled syringe: patient returns to the clinic the day after chemotherapy for a manually administered subcutaneous injection.
- Use of the on-body injector versus a prefilled syringe is particularly more convenient for patients, however little is known about the time required for clinic staff to administer pegfilgrastim via the on-body injector versus the prefilled syringe.

METHODS

- Study Design:
  - Prospective time-motion observational study of staff administering pegfilgrastim primary prophylaxis to patients receiving myelosuppressive chemotherapy.
  - Data on time required for pegfilgrastim administration-related activities were collected from community-based oncology centers in the US that administer pegfilgrastim primary prophylaxis via on-body injector and prefilled syringes as part of routine clinical practice.
  - Data were collected between May and October 2017.
- Pegfilgrastim administration-related activities were included for patients ≥ 18 years old receiving chemotherapy.
- Trained data collectors observed clinic staff and staff time associated with pegfilgrastim administration via on-body injector and prefilled syringe, and study monitors captured notes on the overall process.
- Planned sample size was 10 centers; however, the study was stopped early due to accrual challenges, and only two centers participated in the study.

Pegfilgrastim Administration-Related Activities With On-body Injector and Prefilled Syringe

<table>
<thead>
<tr>
<th>Activity</th>
<th>On-body Injector 1 (n = 75)</th>
<th>Prefilled Syringe 2 (n = 53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total clinic staff time</td>
<td>19.54 ± 7.39 min</td>
<td>15.47 ± 5.72 min</td>
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<tr>
<td>Time for Application/Administration</td>
<td>11.59 ± 5.26 min</td>
<td>7.34 ± 3.11 min</td>
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<tr>
<td>Time for Review of OBI, Education, Q&amp;A</td>
<td>2.73 ± 1.66 min</td>
<td>3.44 ± 2.07 min</td>
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<tr>
<td>Time for Application/Administration</td>
<td>1.91 ± 1.14 min</td>
<td>4.61 ± 2.69 min</td>
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<tr>
<td>Time for Start of Injection</td>
<td>1.64 ± 1.14 min</td>
<td>0.62 ± 0.34 min</td>
</tr>
<tr>
<td>Time for Discharge</td>
<td>0.16 ± 0.11 min</td>
<td>0.08 ± 0.06 min</td>
</tr>
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RESULTS

- Two sites participated in the study, and a total of 208 nurses were observed.
- Total observations:
  - Prefilled syringe: 53 patients (19 first-time patients)
  - On-body injector: 75 patients (10 first-time patients)

Patient Demographics

<table>
<thead>
<tr>
<th>Age, median (range)</th>
<th>Sex, n (%)</th>
<th>Time-Motion Application/Administration</th>
<th>Subsequent Application/Administration</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>56 (19–86)</td>
<td>58 (81)</td>
<td>19.54 ± 7.39 min</td>
<td>15.47 ± 5.72 min</td>
<td>19.01 ± 6.74 min</td>
</tr>
<tr>
<td>58 (19–86)</td>
<td>23 (47)</td>
<td>19.54 ± 7.39 min</td>
<td>15.47 ± 5.72 min</td>
<td>19.01 ± 6.74 min</td>
</tr>
</tbody>
</table>

LIMITATIONS

- Only 2 clinics participated in this study, limiting the generalizability of the conclusions.
- The centers were largely converted to the on-body injector, and our descriptive analysis was unadjusted for potential differences in patient characteristics.
- Clinic administrative time required to schedule the day-ahead administration of pegfilgrastim could not be captured.

CONCLUSIONS

- From a patient’s perspective, on-body injector application occurs at the end of chemotherapy and does not require a next-day visit to the clinic.
- Next-day administration of pegfilgrastim can result in substantial clinic wait time, which is not required for patients who receive pegfilgrastim via the on-body injector.
- Most nurses had experience with applying the on-body injector before the study.
- There was no difference between time spent applying the on-body injector and use of the prefilled syringe; however, the implied overall burden for patients who received the on-body injector is lower after accounting for patient wait time for next-day injection.

DISCLOSURES

- From a patient’s perspective, on-body injector application occurs at the end of chemotherapy and does not require a next-day visit to the clinic.
- Next-day administration of pegfilgrastim can result in substantial clinic wait time, which is not required for patients who receive pegfilgrastim via the on-body injector.
- Most nurses had experience with applying the on-body injector before the study.
- There was no difference between time spent applying the on-body injector and use of the prefilled syringe; however, the implied overall burden for patients who received the on-body injector is lower after accounting for patient wait time for next-day injection.
- Less time was required for application of the on-body injector to subsequent versus first-time patients. Likely because education about the device was completed at the first-on body injector application.
- Taken together with results from a previous study that demonstrated a significant travel burden for next-day clinic visits for granulocyte colony-stimulating factor therapy, use of the on-body injector for pegfilgrastim prophylaxis may reduce the overall time burden for patients, their families, and health care providers.

REFERENCES


ACKNOWLEDGMENT

This study was funded by Amgen Inc. Medical writing support for this poster was funded by Amgen Inc. and provided by Kathryn Boorer, PhD, of KB Scientific Communications, LLC.