Increasing Adherence to Oral Tacrolimus Using a Medication Reporting Intervention

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Introduction and Purpose

Medication non-adherence can be detrimental for persons who undergo Allogeneic-Stem Cell Transplant (allo-SCT).

Purpose: Increase adherence to oral tacrolimus by implementing a medication reporting intervention

Aims

Project aims, for persons undergoing allo-SCT who were between 15- and 90-days status post SCT, with follow up appointments with Quality Improvement (QI) project leader in SCT-Ambulatory Treatment Center (ATC), were to:

• Aim 1: Achieve oral tacrolimus medication adherence of 95% or greater

• Aim 2: Increase patient satisfaction of 85% or more, reporting satisfied or very satisfied with the perceived support related to promoting medication adherence

• Aim 3: Achieve patient satisfaction of 85% or more, reporting satisfied or very satisfied with the medication grid

• Aim 4: Assess adherence to using the medication grid for the medication reporting intervention

Methods

Design: QI project; pre-post historical and a pre-post within intervention group design

Setting: Single unit outpatient SCT ATC within large comprehensive cancer center in Southwest, US

Sample inclusion criteria

• Allo-SCT patients between 15 and 90 days post allo-SCT, n=16; historical group n=19 participants

• Oral tacrolimus drug

• Follow up appointments with project leader in SCT-ATC

Sample exclusion criteria: hospital readmission

Intervention

Medication List

START taking these medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>Amount</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tacrolimus</td>
<td>1 mg</td>
<td>BID</td>
</tr>
</tbody>
</table>

Medication reporting intervention

Results

Aim 1a and 1b

Table 2. Tacrolimus Level Analysis Pre and Post Intervention

<table>
<thead>
<tr>
<th>Tacrolimus adherence goal range: yes or no</th>
<th>Pre-intervention N(%) Historical</th>
<th>Post-intervention N(%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>W2D1</td>
<td>10 (52.6%)</td>
<td>5 (31.3%)</td>
<td>0.20</td>
</tr>
<tr>
<td>W2D2</td>
<td>3 (15.8%)</td>
<td>3 (18.8%)</td>
<td>1.00</td>
</tr>
<tr>
<td>W4D1</td>
<td>3 (16.7%)</td>
<td>5 (31.3%)</td>
<td>0.43</td>
</tr>
<tr>
<td>W4D2</td>
<td>6 (33.3%)</td>
<td>2 (12.5%)</td>
<td>0.23</td>
</tr>
<tr>
<td>Overall</td>
<td>14 (73.7%)</td>
<td>8 (50%)</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Aim 2

Patient Satisfaction Survey

• Assess confidence, resources, and support with promoting adherence

• Higher scores=higher satisfaction

• Median summary score:
  - pre 8 (IQR=1.1); post 7.9 (IQR=1.1); difference 0 (IQR=2.0)
  - Wilcoxon Signed-Rank Test: not statistically significant (p=0.07)

Aim 3

Question

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication grid helped me keep track of my tacrolimus</td>
<td>Disagree</td>
<td>1</td>
<td>8.3%</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>1</td>
<td>8.3%</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>10</td>
<td>83.3%</td>
</tr>
<tr>
<td>I would continue using the medication grid after discharge</td>
<td>Disagree</td>
<td>2</td>
<td>16.7%</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>3</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>7</td>
<td>58.3%</td>
</tr>
<tr>
<td>I would recommend using the medication grid to other patients</td>
<td>Disagree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>2</td>
<td>16.7%</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>10</td>
<td>83.3%</td>
</tr>
</tbody>
</table>

Discussion

• Intervention well received: 91.6% satisfaction, >50% adherence to intervention tool

• Ceiling effect related to high baseline medication adherence and satisfaction scores

• Benefits of educational interventions over 4-8 weeks versus one session at time of discharge: greater knowledge and retention

• Lower GVHD occurrence, hospital re-admissions, and deaths in intervention group

Limitations

• Sample size not large enough to detect statistically significant differences

• Did not control for confounding variables such as age, diagnosis, number of SCTs, type of SCT, transplant regimen, or co-morbidities

• Bias of survey results due to recall or social desirability bias

• Intervention helped with medication tracking but did not help with reminders

• Duration of intervention over 4-8 weeks; likely would be most beneficial over 6 months or entire duration of tacrolimus treatment

Conclusion

• Findings highlight that participants want to be adherent and are looking for an easy tool to integrate into their everyday lives

• This pre-post design QI project is among the first of its kind using an EHR medication grid for medication reporting or medication journaling

• Intervention is low-technological, low-cost, causes minimal changes to workflow, and is easily replicated.

• Need for further studies

References: see reference list. Contact: Asha Demla Email: ashademla@gmail.com