The Impact of Remote Optimization of Guideline-Directed Medical Therapy in Patients with NYHA Stage II and III Heart Failure

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The Impact of Remote Optimization of Guideline-Directed Medical Therapy in Patients with NYHA Stage II and III Heart Failure

Maurice N. Tran, PharmD; Christine Doran, PharmD, BCACP, MBA; Trevor Laursen, PharmD, BCACP; Kellie Graybosch, MS, PA-C; Jacob Abraham, MD

Background

- In the United States, heart failure (HF) is one of the most common hospital discharge and re-admission diagnoses.1,2
- Identified contributors to this issue include the lack of: (1) use of all recommended HF medications as tolerated by the patient and (2) titration to target medication doses as outlined by expert guidelines.1,4
- The Heart Failure Society of America recommends that HF clinics can improve patient outcomes by incorporating a pharmacist to optimize medications.5
- Incorporation of pharmacist into a HF clinic is correlated with patients achieving target medication doses and lower hospital re-admission rates.3-4
- The impact of incorporating a clinical pharmacist in a HF clinic has not yet been assessed at PSJH Oregon.

Purpose

Evaluate the impact of incorporating a clinical pharmacist into a cardiology clinic for remote HF medication optimization.

Study Design

Study Design: Quality improvement (QI) project

Inclusion Criteria:
- ≥ 18 years old
- admitted for HF exacerbation to a tertiary care hospital and will be receiving outpatient care at a cardiology clinic

Exclusion Criteria:
- life expectancy of < 1 year
- left ventricular assist device implantation
- history of heart transplantation
- chronic kidney disease (Stage 4 or higher)
- NYHA Class IV HF with reduced ejection fraction (HFrEF)

Objectives:
- **Primary**: Compare the number of HFrEF medication* optimizations made in the intervention vs control groups.
- **Secondary**: Identify provider perspectives on incorporation of a clinical pharmacist for HF medication optimization

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* The 4 HFrEF medication classes included in the analysis of this QI project were evidence-based:
  1) Renin-angiotensin-aldosterone system inhibitors
  2) Beta-blockers
  3) Mineralocorticoid receptor antagonists
  4) Sodium-glucose co-transport 2 inhibitors.

Project Timeline:

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<th>Month</th>
<th>Dec 2021</th>
<th>Jan 2022</th>
<th>Feb 2022</th>
<th>Mar 2022</th>
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Preliminary Results

Table 1. Baseline Patient Characteristics

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<tr>
<th>Variable*</th>
<th>Control (n = 9)</th>
<th>Intervention (n = 9)</th>
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<tr>
<td>Age</td>
<td>61.2</td>
<td>63.7</td>
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<tr>
<td>Female (%)</td>
<td>2 (22.2%)</td>
<td>2 (22.2%)</td>
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<tr>
<td>White (%)</td>
<td>6 (66.7%)</td>
<td>9 (100%)</td>
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<tr>
<td>LVEF**</td>
<td>25%</td>
<td>31%</td>
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<tr>
<td>Systolic Blood Pressure</td>
<td>117</td>
<td>114</td>
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<tr>
<td>Diastolic Blood Pressure</td>
<td>70</td>
<td>69</td>
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<tr>
<td>Heart Rate</td>
<td>76</td>
<td>78</td>
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* All continuous variables are reported as means
** LVEF: Left ventricular ejection fraction

Figure 1. Comparison of Patients and Total Number of HFrEF Medications Prescribed

Figure 2. Comparison of Patients Achieving ≥ 50% of Target Dose of HFrEF Medications

Other Quality Improvement Outcomes

- Developed clinical pharmacist note template to document tele-health appointment interventions.
- 19 medication optimization interventions made in the pharmacist-led optimization group.
- IRB approved clinical pharmacist coverage from 1 to 2 cardiology clinics.
- Switched a patient from Entresto to losartan to address hypotension side effects.
- Switched a patient from carvedilol to metoprolol succinate to (1) reduce hypotension side-effects and (2) improve medication adherence.

Limitations & Next Steps

- Difficulty with timely scheduling patients onto clinical pharmacist tele-health schedule.
- Some patients have been excluded from inclusion in the intervention group due to inability to afford home blood pressure machine.
- Current collaborative practice agreement does not include SGLT-2 inhibitors.
- Will implement in a survey in May to evaluate physician and advanced practice clinician perspective on clinical pharmacist optimization of HFrEF medications

References & Audio Summary