Use of Novel Agents in Heart Failure Patients in an Outpatient Heart Function Clinic

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Background

- Heart failure is a leading cause of mortality and health expenditure burden in Canada, with mortality rates as high as 30% at 1 year and readmission rates as high as 20% in 30 days
- Strategies for management of heart failure with reduced ejection fraction (HFrEF) include guideline-directed medical therapy (GDMT) with beta-blockers, angiotensin-converting enzyme inhibitors (ACEI) or angiotensin receptor blockers (ARB), and mineralocorticoid receptor antagonists (MRA).
- Novel therapies, including sacubitril/valsartan and ivabradine, are recommended for patients who are still symptomatic despite GDMT optimization
- Studies reviewing long-term, real-world applicability of these novel therapies have been limited

Objectives

- **Primary:**
  - To determine the proportion of HFrEF patients who are on ivabradine and/or sacubitril/valsartan, and are on target doses at initial (baseline) visit, 3 months, 6 months, and 12 months post enrollment at the Heart Function Clinic (HFC) at Jim Pattison Outpatient Care and Surgery Centre (JPOCSC)
- **Secondary:**
  - To determine the rate of heart failure hospitalizations for patients on novel therapy
  - To determine the limitations that prevent initiation and titration to target doses
  - To determine the maximally tolerated doses achieved

Methods

- **Design:** Retrospective chart review of HFrEF patients enrolled between September 1, 2017 to August 31, 2019
- **Intervention:** Initiation and titration of novel therapy over 12 months
- **Inclusion Criteria:** ≥ 18 years old, left ventricular ejection fraction (LVEF) ≤ 40%, admission to HFC for at least 3 months
- **Analysis:** Descriptive
- **Eligibility** for initiation based upon BC Heart Failure Network and Cardiac Services Criteria

Background

Table 1: Baseline Characteristics (N=161)

Mean Age ± SD (years)	67.4 ± 13.4
Male (%)	133 (82.6)
Ischemic Etiology (%)	62 (38.5)
NYHA Class II-III (%)	85 (52.8)
Mean SBP ± SD (mmHg)	124.0 ± 21.9
Mean DBP ± SD (mmHg)	72.3 ± 12.2
Mean Heart Rate ± SD (BPM)	67.7 ± 12.9
Mean Potassium ± SD (mmol/L)	4.45 ± 0.5
Mean eGFR ± SD (mL/min)	62.3 ± 25.6
Mean LVEF ± SD (%)	26.6 ± 7.2
Hypertension (%)	99 (61.1)
Atrial Fibrillation (%)	57 (35.2)
On ACEI/ARB (%)	121 (75.2)
On Beta Blocker (%)	152 (94.4)
On MRA (%)	61 (37.9)
On Loop Diuretic (%)	133 (70.2)

Table 2: Sacubitril/Valsartan Eligibility and Use

	# Eligible (n)	Patients On Therapy (n)	On Target Dose (n)
Baseline (n=161)	20	13	1
3 Months (n=115)	39	26	8
6 Months (n=81)	35	25	7
12 Months (n=31)	17	16	5
Total Patients Initiated	47		

Table 3: Ivabradine Eligibility and Use

	# Eligible (n)	On Therapy (n)	On Target Dose (n)
Baseline (n=161)	4	4	0
3 Months (n=115)	7	6	2
6 Months (n=81)	5	4	2
12 Months (n=31)	3	3	1
Total Patients Initiated	10		

Table 4: Heart Failure Hospitalizations

	# Total Patients (n)	% Total Patients Hospitalized (n)
3M	115	6.1% (7)
6M	81	14.8% (12)
12M	31	6.45% (2)

	# Patients on Sacubitril/ Valsartan	% Patients on Sacubitril/Valsartan Hospitalized (n)	# Patients on Ivabradine	% of Patients on Ivabradine Hospitalized (n)
3M	26	7.69% (2)	6	0% (0)
6M	25	4% (1)	4	0% (0)
12M	16	0% (0)	3	0% (0)

Figure 1: Reasons for Ineligibility

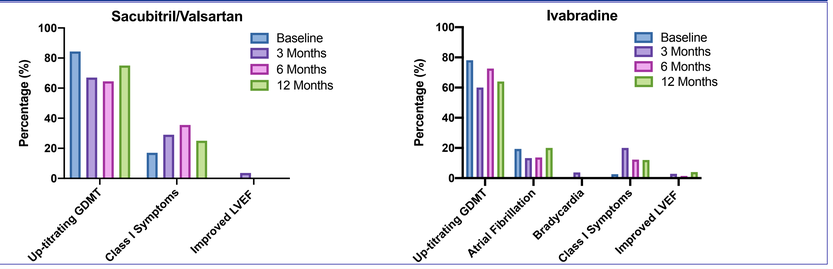


Figure 2: Barriers to Sacubitril/Valsartan Initiation for Eligible Patients

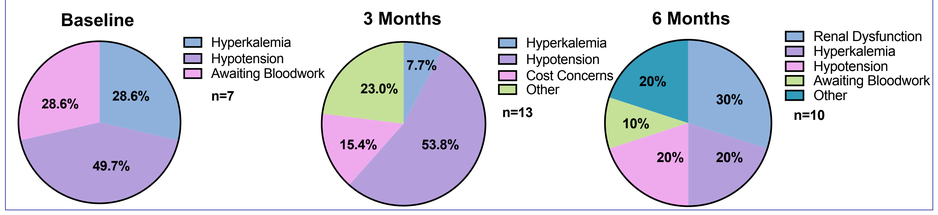


Figure 3: Barriers that Limit Titration of Therapy

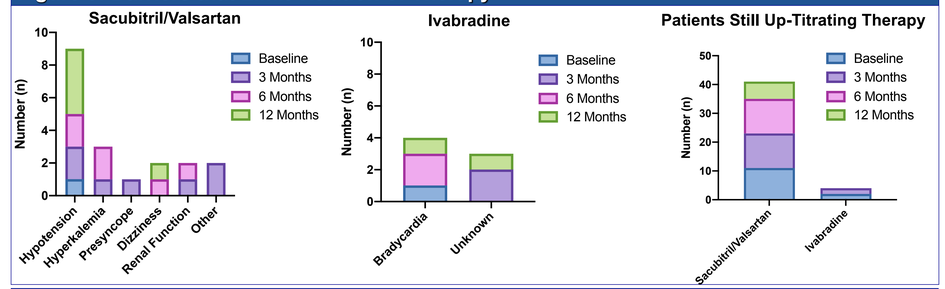
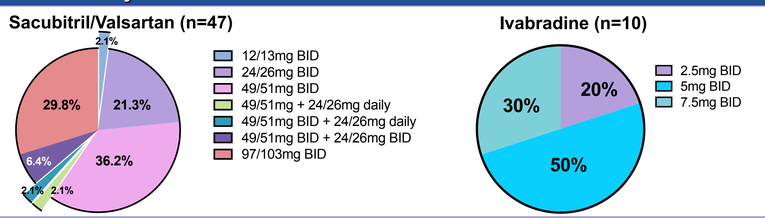


Figure 4: Maximally Tolerated Doses



Limitations

- Detailed patient follow-ups collected only at specified time points
- Collection of endpoints only possible with documentation in chart
- Cost concerns may be underreported – PharmaCare Special Authority only approved during study period
- Patients followed up until their last documented in-person visit

Conclusions

- Less novel therapy initiations than anticipated; cohort presented with less severe symptoms (NYHA Class I) and/or were not yet optimized on GDMT
- Overall, patients titrated at slower rate compared to landmark trials
- Not many patients achieved target doses during study period

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