

Diabetes Control in Heart Failure with Preserved Ejection Fraction (HFpEF) Patients Within an Outpatient Heart Function Clinic



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Background

- HFpEF trials have not revealed a reduction in mortality with current therapies, and the management of HFpEF relies on management of comorbidities such as diabetes and hypertension
- One of the most common comorbidities seen in HFpEF patients is Type-2 Diabetes Mellitus (T2DM), as high as 45%, and morbidity and mortality is increased in patients with HFpEF and T2DM
- Landmark trials with SGLT-2 Inhibitors have shown a decrease in CV endpoints, worsening heart failure, and mortality
- Investigations into the role of glycemic control in diabetic HFpEF patients can help identify its effect on clinical outcomes including HF hospitalizations/ exacerbations and mortality

Objectives

- Primary:**
 - To determine the percentage of diabetic HFpEF patients with adequate glycemic control
- Secondary:**
 - To determine the hospitalization rates and reasons of hospitalizations of HFpEF patients
 - To determine if HF hospitalizations are associated with poor glycemic control
 - To determine which agents are used in diabetes management in HFpEF patients
 - To determine the percent of HFpEF patients who may be eligible for SGLT-2 Inhibitors based on renal function

Methods

- Design:** Retrospective chart review of patients enrolled at the Heart Function Clinic in Jim Pattison Outpatient Care and Surgery Centre (JPOCSC) between September 1, 2017 and August 31, 2019
- Inclusion Criteria:** ≥18 years old, Ejection Fraction (EF) ≥ 50%, diagnosis of T2DM, attendance of at least 1 visit to Heart Function Clinic at JPOCSC
- Definitions:** Glycemic control: Tight (HbA1c ≤7%), Adequate (HbA1c 7.1-8.5%) Inadequate (HbA1c >8.5%)
- Analysis:** Descriptive statistics, McNemar's Test

Results

Table 1. Baseline Population Characteristics (N=142)

Mean age ± SD	76 ± 10.2	Comorbidities n(%)	
Male n(%)	64(45.1)	Hypertension	137(96)
Ethnicity n(%)		Atrial Fibrillation	70(49.3)
Caucasian	51(35.9)	Coronary Artery Disease	67(47.2)
South Asian	57(40.1)	Obesity	51(36)
East Asian	7(4.9)	Chronic Kidney Disease	100(70)
Other	26(18.3)	Dyslipidemia	116(81)
New York Heart Association (NYHA) Class n(%)		Mean HbA1c	7.4
I	19(15.6)	T2DM Medication n(%)	
II	61(50)	SGLT2-I	4(2.8)
III	42(34.4)	Insulin	55(38.7)
		Metformin	60(42.2)
		Sulfonylurea	43(30.3)
		No Medications	27(19)

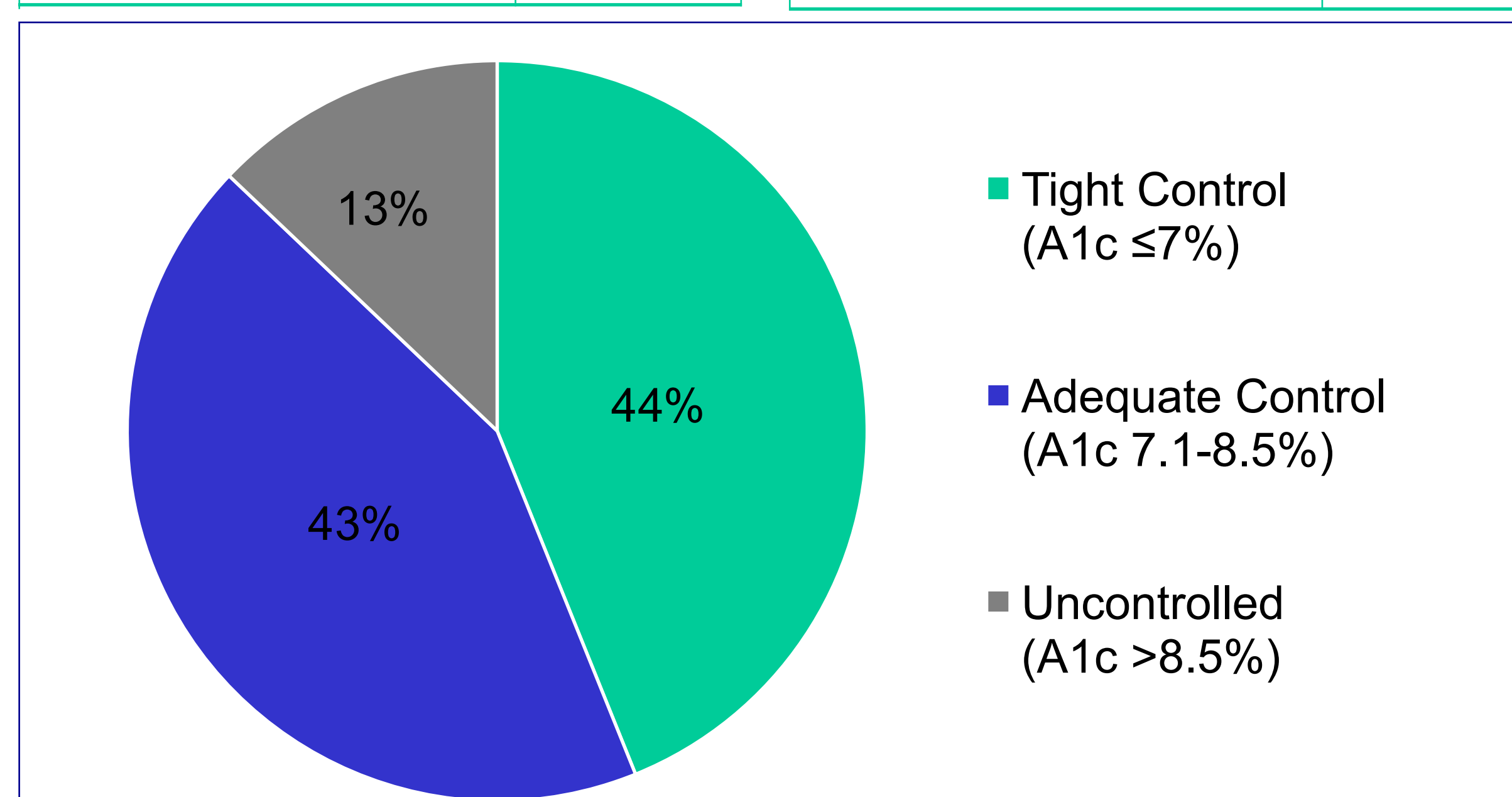


Figure 1. Percentage of diabetic HFpEF patients with adequate glycemic control at intake visit

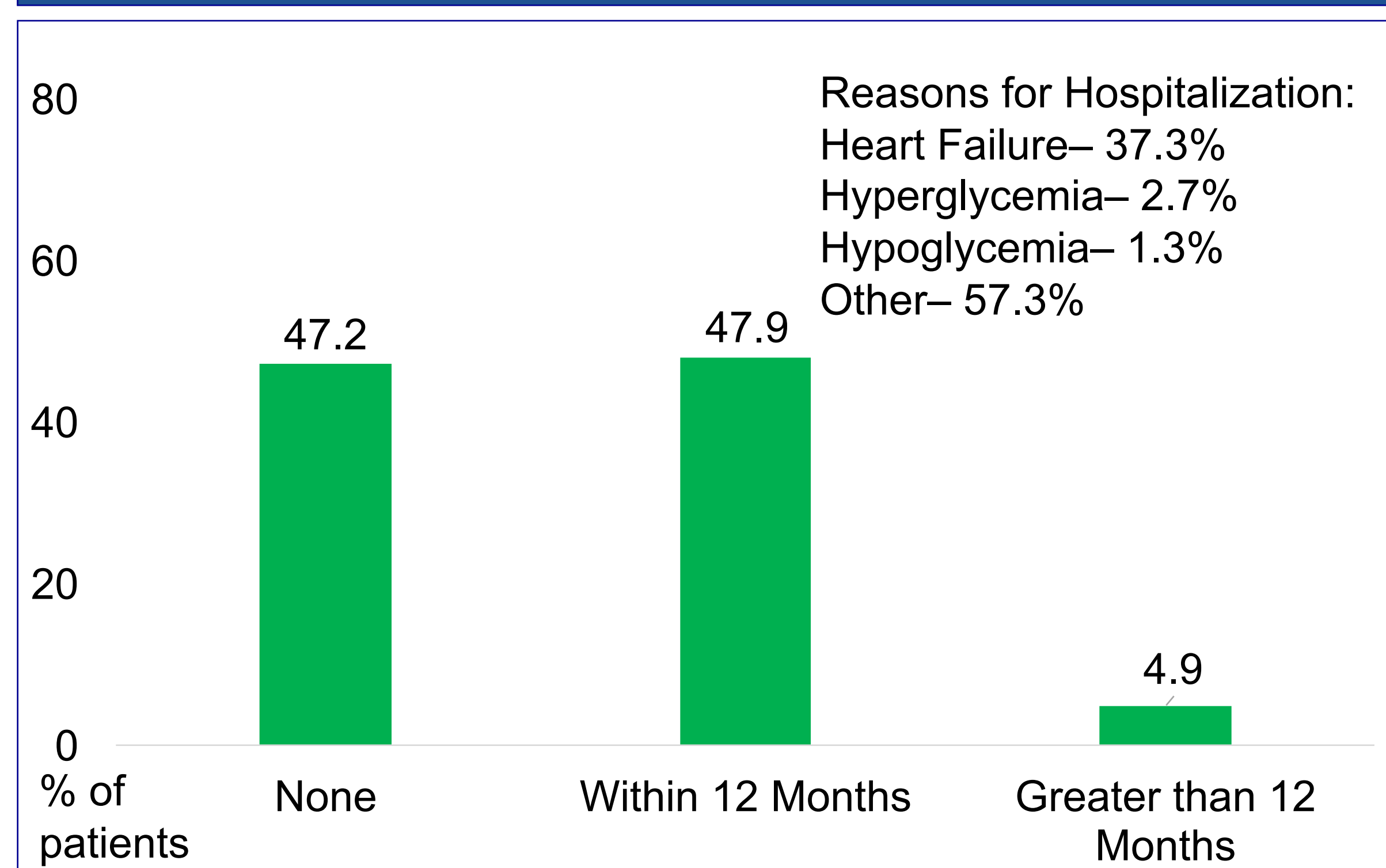


Figure 2. Hospitalization rates (%) and reasons

Results

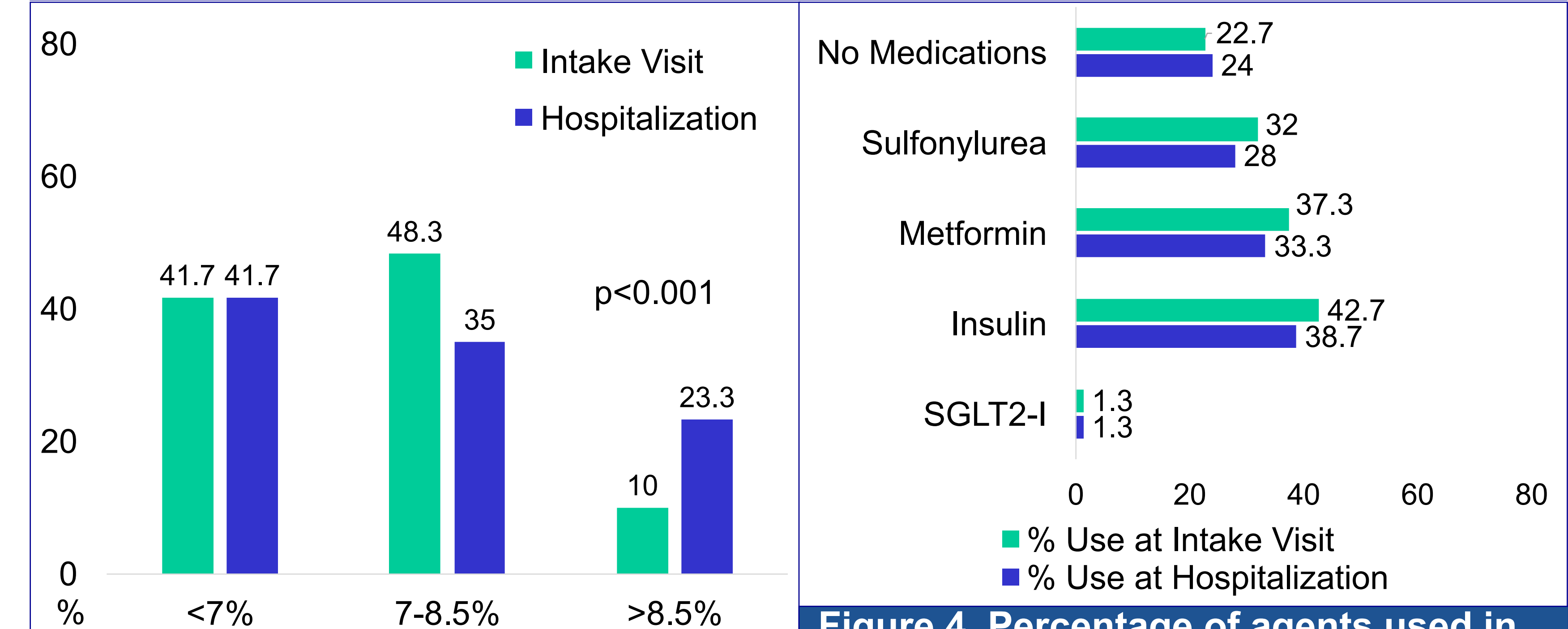


Figure 3. Comparison of percentage of hospitalized patient HbA1c at intake visit with HbA1c at the first hospitalization (N=75)

Figure 4. Percentage of agents used in diabetes management of hospitalized HFpEF patients at intake visit and at first hospitalization (n = 75)

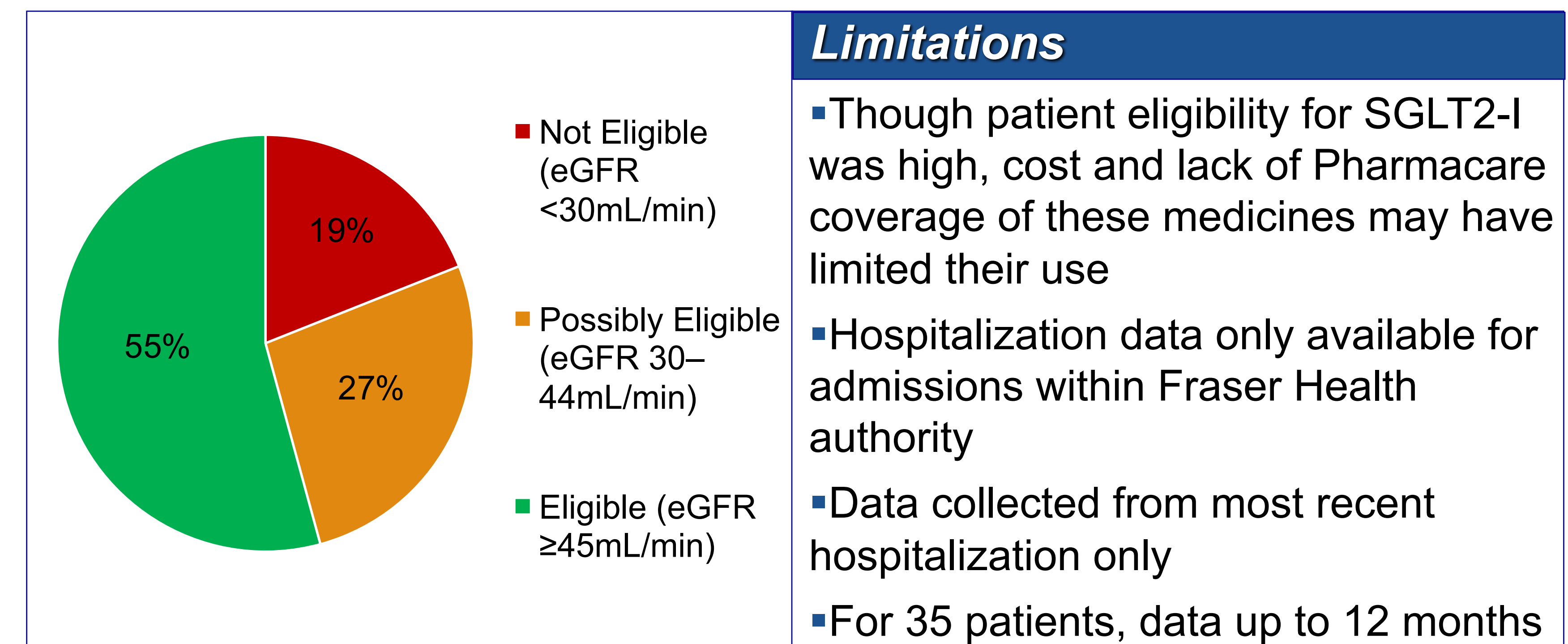


Figure 5. Percentage of patient eligibility for SGLT-2 inhibitors (i.e., empagliflozin, dapagliflozin)

Limitations

- Though patient eligibility for SGLT2-I was high, cost and lack of Pharmacare coverage of these medicines may have limited their use
- Hospitalization data only available for admissions within Fraser Health authority
- Data collected from most recent hospitalization only
- For 35 patients, data up to 12 months was not available during data collection
- Short term study of 12 months

Conclusions

- Diabetes was well controlled with 85% of patients having an HbA1c below 8.5%
- There is room for improving hospitalization rates through improving glycemic control, as there was a higher rate of uncontrolled diabetes at hospitalization than at intake visit
- There may be future opportunities for diabetes interventions in the Heart Function clinic with agents that have cardiovascular and heart failure benefit
- There is room to utilize SGLT-2 Inhibitors given their evidence in diabetics with heart failure
 - Pharmacare approval for empagliflozin came in May 2019; there may be an increase in the uptake of these medications in the near future