Sacubutril/Valsartan is Safe and Effective in Reducing Heart Failure Symptoms in Adults with Congenital Heart Disease

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BACKGROUND

- Adults with congenital heart disease (ACHD) is a rapidly growing field with a population that is surviving later into adulthood[1]
- Systemic ventricular failure is a common cause of morbidity and failure in early adulthood[2]
- Sacubitril-valsartan has been shown to improve mortality in patients with heart failure and reduced ejection fraction[3]
- There is limited data to describe the safety and efficacy of sacubitril-valsartan in ACHD

METHODS

- Retrospective cohort study
- Inclusion
  - Active patients at the Pacific Adult Congenital Heart (PACH) clinic in British Columbia
  - Filled prescriptions for sacubitril-valsartan between Sept 2016 – Sept 2018 as identified from Pharmanet database, BC Ministry of Health
- Efficacy outcome variables
  - HF symptoms
  - Systemic ventricular function
- Safety outcome variables
  - Electrolytes
  - Renal function

RESULTS

- Ten patients were identified who met inclusion criteria
- Primarily male population (90%)
- Most with complex congenital heart disease
- Baseline systemic ventricle EF = 24.4%
- Well treated on conventional medical therapy
  - All patients on ACEi/ARB and beta blocker
  - Most patients on mineralocorticoid antagonist
- No significant difference in baseline and post-treatment (average 56 days) creatinine, GFR and potassium
- Significant improvement in NYHA classification (p=0.02)
- Trend towards improvement in systemic ventricular function (p=0.06)

Table 1. Baseline clinical characteristics

	(n=10)
Mean age	44.5 (±15.7)
Female	1 (10%)
Systemic left ventricle	6 (60%)
Lifetime surgeries	1.2 (±1.1)
Primary diagnosis	
• **TGA**	4 (40%)
• **Aortopathy**	2 (20%)
• **Tricuspid atresia**	1 (10%)
• **LVNC**	1 (10%)
• **DORV**	1 (10%)
• **Ebstein anomaly**	1 (10%)
Medical therapy	
• **ACEi or ARB**	10 (100%)
• **Beta blocker**	10 (100%)
• **MRA**	9 (90%)

TGA: transposition of the great arteries
LVNC: left ventricular noncompaction
DORV: double outlet right ventricle

Table 2. Safety and efficacy of treatment with sacubitril-valsartan

	Baseline (ACEi/ARB)	Post-treatment (Sacubitril/Valsartan)	p-value
Creatinine (mmol/L)	102	114	0.18
GFR (ml/min/1.73m²)	79.1	73.9	0.37
Potassium (mmol/L)	4.4	4.3	0.29
NYHA classification	2.4	1.7	**0.02**
Systemic ventricle EF	24.4%	28.4%	0.06

GFR: glomerular filtration rate
NYHA: New York Heart Association classification
EF: ejection fraction

LIMITATIONS

- Retrospective study with limited number of patients
- Short term follow up post-treatment (sacubitril/valsartan)
- Did not evaluate other efficacy outcomes (HF hospitalization, mortality)
- Improvement in systemic ventricular function with sacubitril/valsartan was not statistically significant

CONCLUSIONS

- Sacubitril-valsartan has been used in BC for patients with ACHD who have complex congenital heart disease and significant systemic ventricular dysfunction
- The use of sacubitril-valsartan appears to be safe in ACHD
- Sacubitril-valsartan improves HF symptoms
- Larger registry studies are necessary to confirm these findings