Therapeutic Inertia in Blood Pressure Control & Heart Failure

Christopher Fuentes[1], Xenia Leon[1], Belle Soyfer[1], William Jones RPh, MS[1,2]

The University of Arizona R. Ken Coit College of Pharmacy[1], Banner University Medical Group[2]

THE UNIVERSITY OF ARIZONA R. Ken Coit College of Pharmacy

Banner University Medical Center

Pharmacy

Introduction

- Therapeutic inertia (TI) is failure to increase therapy when treatment goals are unmet. TI is one of the contributors to the high prevalence of uncontrolled blood pressure (BP).
- Hypertension is a modifiable risk factor that can play a role in developing heart failure (HF).
- Currently, there are a few studies published on TI of BP control in HF patients.

Objectives

- Examine TI in BP control in patients with HF in an ambulatory care setting in comparison to American College of Cardiology/American Heart Association (ACC/AHA) guidelines and landmark trial recommended therapy.

Methods

- Data were collected via retrospective chart review over a year and included the two most recent BP measurements and current therapy.
- Patients were part of a dual eligible cohort and identified using Cerner Dynamic Worklist coding for a diagnosis of HF regardless of ejection fraction (EF).
- TI was analyzed with the mean of the last 2 BP measurements and current dose of angiotensin-converting enzyme inhibitors (ACEi), angiotensin receptor blockers (ARB), sacubitril/valsartan (ARNI), beta-blockers (BB), and/or mineralocorticoid receptor antagonists (MRA) compared to therapeutic doses determined in landmark trials (Table 1).
- TI had an exception if systolic BP was < 100 mm Hg.
- Goal BP was based on the ACC/AHA guidelines goal of ≤ 130/80 mmHg.
- Data were analyzed using the chi-square test and t-test. The level of significance was ≤ 0.05.

Results

- 55 patients were evaluated: 17 male and 38 female patients (mean age 64.1 ± 12.5 [range 38-88] years).
- 56% of all patients had controlled BP. TI was present in 54% of the cohort.
- BP was statistically lower in the controlled patients (Table 2). No statistically significant difference was found between BP control and therapeutic inertia (Figures 1 and 2) with p value of 0.3.

Table 1: Optimal Dose

Drug	Target Dose
Enalapril	10-20 mg BID
Lisinopril	20-40 mg daily
Losartan	50-150 mg daily
Valsartan	160 mg BID
Sacubitril/Valsartan	97/103 mg BID
Bisoprolol	10 mg daily
Carvedilol	25 mg BID
Carvedilol ER	80 mg daily
Metoprolol succinate ER	200 mg daily
Metoprolol tartrate	100mg BID
Eplerenone	50 mg daily
Spironolactone	25-50 mg daily

Table 2: BP (mm Hg) Uncontrolled and Control Patients

	Uncontrolled (N = 26)	Controlled (N = 29)
Mean	141 ± 12/76 ± 8	117 ± 8/69 ± 8
Range	131-165/65-79	98-129/48-92
P < 0.01 for Systolic and Diastolic BP		

FIGURE 1: BP CONTROL AND THERAPEUTIC INERTIA

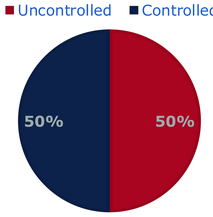
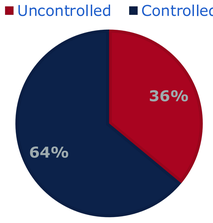


FIGURE 2: BP CONTROL AND NO THERAPEUTIC INERTIA



Limitations

- The data collected were from a small sample size; the cohort evaluated consisted of 55 patients.
- The chart review was retrospective.
- The intervals at which each BP were collected were not the same for all patients.
- Reasons for TI were not assessed (e.g., patient preference, intolerance).

Strengths

- Evaluated therapeutic inertia in BP control in patients with HF in an ambulatory care setting. Limited information is available regarding TI and controlling BP in heart failure patients.

Conclusions

- BP was frequently uncontrolled and therapeutic inertia was present in over 50% of the cohort.

Future Projects

- Titration of drug doses to control BP is an opportunity for pharmacists to improve quality of care.
- Future research should assess pharmacist intervention to prevent therapeutic inertia in BP control in patients with HF.

References

Clinical Resource, *Target Doses of Meds for Systolic Heart Failure. Pharmacist's Letter/Prescriber's Letter.* December 2017.

Acknowledgements

Special thanks to the Healthy Together Care Partnership and the University of Arizona for supporting this project.

No funding was provided for this project.