Using a Evidence-Based Treatment Protocol for Hypertension Management: Exploring Patterns of Protocol Deviation

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BACKGROUND/PURPOSE

- Hypertension is highly prevalent in Southeastern United States
- Hypertension is the lead contributor to cardiovascular disease
- Protocol driven care is proven, but real-world patient care requires deviations

METHODS

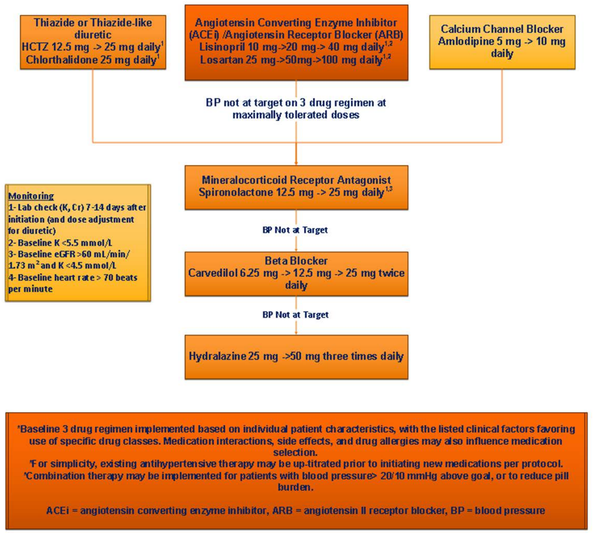
- Adult patients at UMMC with uncontrolled hypertension
- Inclusion and exclusion criteria in Table 1
- Patients mailed a telemonitoring kit
  - iPad tablet
  - Wireless BP cuff
- Daily health sessions with BP measurement
- Pharmacist led antihypertensive medication titration every three weeks
- Goal BP < 130/80 mmHg
- Antihypertensive protocol in Figure 1
- Antihypertensive medications adjusted based on patient characteristics
- Lab monitoring of electrolytes and renal function conducted after initiation and intensification of drug therapy
- Protocol deviations documented
- Data recorded in REDCap
- Data analysis in Microsoft Excel

Table 1: Inclusion/Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
1. Age greater than 21 years	1. Stage 4 or 5 kidney disease (eGFR <30ml/min/1.73m^2 on the most recent measurement)
2. Approved by primary UMMC clinic provider for study participation	2. Acute coronary syndrome, coronary revascularization, stroke, or other major cardiovascular event within the past 3 months
3. At least two clinic-based BP values in the previous 12 months with systolic BP ≥ 140 mmHg and/or diastolic BP ≥ 90 mmHg	3. Known secondary causes of hypertension including coarctation of the aorta, pheochromocytoma, and adrenal cortical hypertension
	4. Class III or IV New York Heart Association heart failure or left ventricular ejection fraction <50%
	5. Institutionalized (i.e. nursing home) or limited life expectancy as determined by chart review including advanced stage cancer, severe frailty, or other major comorbidity

METHODS CONTINUED

Figure 1: DRUG THERAPY PROTOCOL

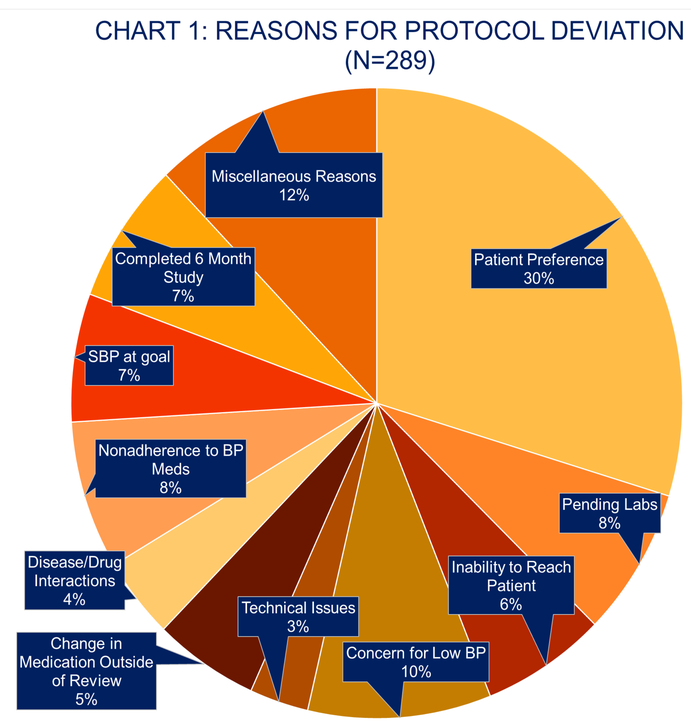


RESULTS

- August 2018 through February 2020
- 117 participants enrolled
- All participants completed onboarding and medication reconciliation with a pharmacist
- 920 BP reviews
  - 140 reviews with BP at goal
  - 432 reviews completed according to protocol
  - 59 reviews with insufficient number of BP data measurements
  - 289 reviews deviated from protocol management with reasons noted in Chart 1

RESULTS CONTINUED

CHART 1: REASONS FOR PROTOCOL DEVIATION (N=289)



CONCLUSIONS

- Deviation from a pre-specified protocol is often necessary for hypertension management
- These findings highlight the importance of flexible treatment protocols in real-world patient care and inform development of future protocols to optimize hypertension management

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