Impact of Home Blood Pressure Monitoring (HBPM) on Outpatient Management of Hypertension

Rahul Prakash Rane, MD. Sidra Kalsoom, MD. Asna Shahab, MD. Sagar Kumar, MD. Iyad Aljadba, MD. Ashish Jain, MD. Maha Mumtaz, MD. Pan Zonghao, MD. Simunich Thomas, MBA. Khandakar Raihan Hussain, MD*

Department of Internal Medicine, Conemaugh Memorial Medical Center, Johnstown, PA

Uncontrolled hypertension is one of the leading causes of cardiovascular mortality and morbidity. Appropriate outpatient identification and management of hypertension is a crucial component in mitigating these risks. One among several tested approaches to help increase the prevalence of control in blood pressure is increasing the awareness of this co-morbidity.

**INTRODUCTION**

**PROBLEM STATEMENT**

- A nationwide declining high blood pressure (BP) awareness among hypertensive patients since 2013 [1].

**OBJECTIVE**

- Assess the impact of increased awareness among hypertensive patients in controlling blood pressure via integrating home blood pressure monitoring (HBPM) and educating patients about the long-term complications of uncontrolled hypertension through multi-modal counseling.

**METHODS**

- A single cohort of adult (≥ 18 years) patients diagnosed with primary hypertension (HTN), systolic blood pressure (SBP)>130, and diastolic blood pressure (DBP)>80, seen in our outpatient clinic were included in our study.
- Retrospectively, we assessed the degree of blood pressure control between a pre-intervention visit (point A) and the start date of intervention (point B) by noting the difference in SBP/DBP with routine medical management alone. (Figure 1)
- Next, as part of our intervention, between 06/2021 and 07/2022, we provided the same cohort of patients alongside routine medical management
  - a blood pressure log sheet to record twice daily blood pressure readings with emphasis on the proper technique
  - education regarding long-term complications with handouts and infographics.

**RESULTS**

- Thirty-six patients with an average age of 61 years (range: 38-83) met our inclusion criteria. Males represented 61%.
- Mean SBP (SD) for the three time points (A, B, C) were 143 (18), 150 (19), 135 (16), respectively, and mean DBPs 84 (12), 86 (12), 81 (10).
- The mean SBP change for the intervention period -14 (19), was statistically significantly greater than that for the pre-intervention, 6 (20), p=.001. (Figure 2)
- The mean DBP change for the intervention period, -4 (13), was not statistically different from that for the pre-intervention, 2 (13), p=.080 however, it was clinically significant. (Figure 2)
- Further, supporting the effectiveness of our intervention, 55% of patients showed improvement in their BP without the addition of antihypertensive medication.
- From the provider’s perspective, 92% of the physicians acknowledged that medication titration was easier with multiple home blood pressure readings.

**CONCLUSION**

- The above result reinforced that HBPM and multi-modal counseling positively impacted outpatient management of hypertension.
- Possible explanations include improved medication adherence via increased patient awareness of their elevated blood pressure through HBPM and long-term complications of uncontrolled hypertension.
- Medication titration was also more effective with multiple home BP readings from the provider’s perspective.
- This project also implies a need for further research with a greater sample size to assess the implications of our intervention.

**REFERENCES**