

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

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INTRODUCTION

- 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.

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.

- We followed the patients from the time of intervention (point B) and re-measured the changes in SBP/DBP during their subsequent visit (point C). We then compared the degree of control between the pre-intervention period (routine medical management) versus the intervention period (addition of HBPM and multi-modal counseling).
- We also assessed the impact of this intervention on the ease of medication modification from a provider's perspective via a questionnaire.
- We hypothesized that the intervention would yield more significant improvement than traditional medical management alone.
- Statistical analyses were performed using SPSS.



Figure 1: Timeline of events as described in the methods section

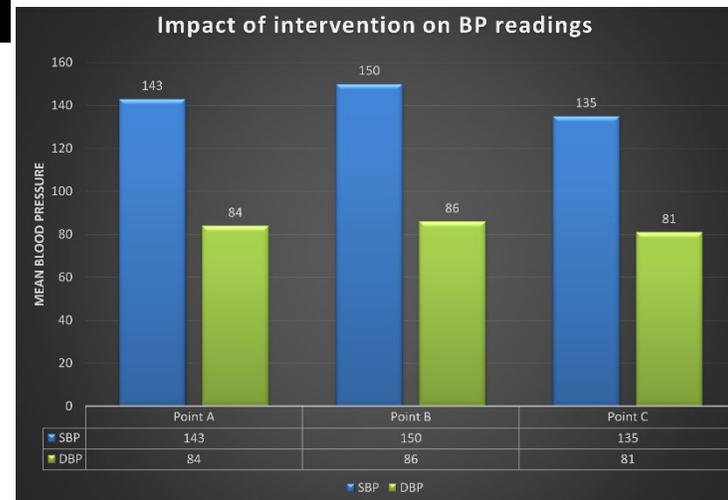


Figure 2: Results of our intervention
SBP- Systolic blood pressure, DBP- Diastolic blood pressure

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 anti-hypertensive 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.



Figure 3: Inference of our project

REFERENCES

- Trends in Blood Pressure Control Among US Adults With Hypertension, 1999-2000 to 2017-2018 Paul Muntner, Ph.D.et al.