Self-Management Blood Pressure Program to Improve Hypertension Control

Mary Ella McClain, BSN, RN, MSN Student

Dr. Kathy Ellison, PhD, RN, Faculty Advisor, Auburn University

AUBURN UNIVERSITY College of Nursing

Background and Significance

- Hypertension (HTN) affects approximately 30% of adults while only 24% achieve optimal blood pressure control (Centers for Disease Control and Prevention, 2020).
- The Centers for Disease Control and Prevention (2020) estimated HTN costs at $131 billion from 2003 to 2014, carrying a significant financial healthcare burden.
- HTN is a significant public health challenge primarily neglected by the public health system and remains an unmet clinical issue (Parati et al., 2021).
- Additionally, sustained high blood pressure (BP) damages the heart and increases cardiovascular patient disease risks (Pugh, 2018).
- Evidence-based practice (EBP) techniques such as nutrition, physical activity, and self-management interventions can promote hypertension management (Lelong et al., 2015).

Population

The target population includes adult patients, 18-60 years old, with a hypertension diagnosis in a rural primary care setting.

PICO

"In adults (18-60 years old) with hypertension seen in the primary care setting, how does implementing evidence-based nonpharmacological interventions in addition to pharmacological interventions alone regulate blood pressure and reduce cardiovascular disease risk?"

Literature Search

- Databases utilized: CINAHL (Cumulative Index to Nursing and Allied Health Literature, Health Source: Nursing/Academic Edition, and MEDLINE (Medical Literature On-Line).
- Results: Eight articles relevant to the PICO were synthesized and critically appraised to determine best evidence. The articles selected included randomized controlled trials, population-based retrospective cohort studies, meta-analysis of randomized controlled trials, quasi-experimental studies, and well-developed narrative reviews and quality improvement projects. The research process led to the formation of several evidence-based recommendations for clinical practice.

Grade A Recommendations

1. Incorporate nutritional plans such as the DASH or Mediterranean diet, which includes increasing consumption of fruits, vegetables, and limiting consumption of red meats into hypertension management treatment plans (Caligiuri & Pierce, 2017, Lelong et al., 2015, Mahmood et al., 2019).
2. While adopting nutritional plans, physical activity guidelines should be strongly recommended in hypertension treatment plans; therefore, promoting weight and BMI control, thus decreasing blood pressure and cardiovascular disease risks (Caligiuri & Pierce, 2017, Lelong et al., 2015, Mahmood et al., 2019).
3. While actively engaging with the patient, clinicians should encourage lifestyle interventions in addition to medication therapy for adequate blood pressure control utilizing effective management programs (Caligiuri & Pierce, 2017, Jang et al., 2021).
4. Clinicians should integrate patient-tailored treatment plans incorporating self-management programs; furthermore, partnering with patients to accurately measure and manage hypertension while sharing decision making, BP self-monitoring, and affordable medications (Truing et al., 2021, Gerage et al., 2017, Egan et al., 2018, Sadeghi et al., 2020).

Setting Assessment Results

- Approximately 464 patients were seen in January 2022. Of those patients, approximately 180 hypertensive patients were treated and evaluated that month, which is approximately 39% of the patient population. The report indicated that 70% of patients seen had at least two BP readings greater than 120/89 mmHg.
- Self-management techniques are not a major part of the BP care plan. Therefore, the team agreed that this EBP project could be incorporated to standardize patient education on diet, exercise, and self-management tools for BP control.
- While identifying patient perceptions, an anonymous five-question survey was given to five patients diagnosed with hypertension.
- Three patients stated that they keep a home BP log, and two patients reported that they are familiar with recommended diet and exercise control strategies. One of five patients reported that they would consider a self-management program. All patients reported that they would benefit from more education regarding BP lifestyle techniques.

Project Proposal

Based on the literature review and setting assessment, this project will seek to improve hypertension control through the development and implementation of a self-management blood pressure program.

Implementation Plan

- Overall goal: Provide standardized educational lifestyle protocol.
- The program introduces educational material by providing patients with a written brochure and counseling patients on brochure components. Additionally, the program evaluates patient knowledge by handing out questionnaires pre- and post-implementation.
- Guiding the program, the Hypertension Management toolkit will be used.
- The pre-implementation phase includes preparing the team, gathering resources, and completing necessary staff education.
- The office staff will hand out brochure's, BP logs, and questionnaire's once eligibility and consent is obtained.
- The MA will obtain vitals, educate on proper BP techniques, and demonstrate weekly BP log documentation.
- The NP is responsible for providing verbal education to each eligible patient. The NP also discusses and modifies the brochure material to the patient's specific needs. After education is presented, the patient is asked to "teach-back" what they learned from the conversation and what the next steps should be.
- At check out, the office staff schedules the patient's follow-up appointments.
- During the two-month follow-up, the team members will assess short-term outcomes by evaluating lifestyle adherence and daily BP log changes.
- During the six-month follow-up, the team members will assess long-term outcomes by assessing questionnaire scores comparing data to baseline. Additionally, staff will assess self-reported knowledge and determine any changes in BP readings.

Evaluation Plan

- The overall project desire is an increased knowledge of lifestyle changes, while improving overall blood pressure control.
- Short-term Outcomes: The desired short-term outcome is an increase in overall patient knowledge and an increase in understanding of brochure components compared to the initial appointment. Additionally, a desired short-term outcome is a decrease in systolic BP averaging 5mmHg lower than baseline.
- Long-term Outcomes: The desired long-term outcome is an increase in patient adherence to the lifestyle management program by evaluating the questionnaire scores at the six-month appointment. An increase of three or more questions is desired. Additionally, the BP is expected to be less than or equal to 140/90mmHg or a steady trend in the short-term BP outcome. The long-term goal is for program participants not to regress to old habits and give up on recommended lifestyle changes. The program participant will also self-report once again, evaluating increased or decreased patient knowledge.
- Short-term Data: The data method for determining short-term effectiveness is evaluated by entering data into the EHR and an excel file for trend evaluation. Data includes BP logs and readings and self-reported information.
- Long-term Data: The data is collected from the six-month appointment and weekly BP logs. The data is entered into the existing excel graph, showing score trends. The program participant will also self-report once again, evaluating increased or decreased patient knowledge. The information will be stored in the participant's EHR for pre- and post-implementation trends.

Conclusion

- Incorporating a self-management BP program in this clinic is a practice change needed to improve HTN control. By utilizing EBP control recommendations, clinicians can integrate self-management programs into HTN patient care plans.
- Obtaining positive short- and long-term outcomes will support the integration and continued use of a self-management BP program.
- Further development includes evaluating program outcomes and determining any necessary adjustments including eligibility criteria, brochure components, and methods for educational instruction.
- After determining positive outcomes, the program can be initiated as a standard protocol for hypertensive patients and modifications can be made based on patient-specific needs.

References

- Caligiuri, S. P. B., & Pierce, G. N. (2017). A review of the relative efficacy of dietary, nutritional supplements, lifestyle, and drug therapies in the management of hypertension. Critical Reviews in Food Science & Nutrition, 57(16), 3508–3527.
- Centers for Disease Control and Prevention. (2020, September 8). High blood pressure: Facts about hypertension. https://www.cdc.gov/bloodpressure/facts.htm
- Edelman, R., & Gordan, J. (2017). From 70 to 80 percent: The hypertension management toolkit. The Vermont Department of Health, 1, 1-51. https://www.healthvermont.gov/sites/default/files/documents/pdf/HPDP%20Hypertension-Management-Toolkit_v1.0.pdf
- Egan, B. M., Sutherland, S. E., Rakotz, M., Yang, J., Hanlin, R. B., Davis, R. A., & Wozniak, G. (2018). Improving hypertension control in primary care with the measure accurately, act rapidly, and partner with patients protocol: Results at 6 and 12 months. hypertension. https://doi-org.spot.lib.auburn.edu/10.1161/HYPERTENSIONAHA.118.11558
- Gerage, A. M., Benedetti, T. R. B., Ritti-Dias, R. M., dos Santos, A. C. O., de Souza, B. C. C., & Almeida, F. A. (2017). Effectiveness of a behavior change program on physical activity and eating habits in patients with hypertension: A randomized controlled trial. Journal of Physical Activity & Health, 14 (12), 943–952.
- Jang, S., Han, E., Kang, C., Cho, H.-M., Sohn, H. S., & Lee, J.-Y. (2021). Assessment of a medication management program targeting hypertension and diabetes patients: Impact on medication adherence. Research in Social and Administrative Pharmacy, 17(2), 419–427. https://doi-org.spot.lib.auburn.edu/10.1016/j.sapharm.2020.03.002
- Lelong, H., Galan, P., Kesse-Guyot, E., Fezeu, L., Hercberg, S., & Blacher, J. (2015). Relationship between nutrition and blood pressure: A cross-sectional analysis from the NutriNet-Sante study, a French web-based cohort study. American Journal of Hypertension, 28(3), 362–371. https://doi-org.spot.lib.auburn.edu/10.1093/ajh/hpu164
- Mahmood S., Shah K. U., Khan T. M., Nawaz S., Rashid H., Baqar S. W., & Kamran S. (2019). Non-pharmacological management of hypertension: In the light of current research. Irish Journal of Medical Science. https://doi.org/10.1007/s11845-018-1889-8
- Parati, G., Lombardi, C., Pengo, M., Bilo, G., & Ochoa, J. E. (2021). Current challenges for hypertension management: From better hypertension diagnosis to improved patients' adherence and blood pressure control. International Journal of Cardiology, 331, 262–269. https://doi.org/10.1016/j.ijcard.2021.01.070
- Pugh, L. C. (2018). Evidence-based practice: Context, concerns, and challenges. In D. Dang & S. L. Dearholt (Eds.), Johns Hopkins nursing evidence-based practice: Model and guideline (3rd ed., pp. 3-12). Sigma Theta Tau International.
- Sadeghi, C., Khan, H. A., Gudleski, G., Reynolds, J. L., & Bakhai, S. Y. (2020). Multifaceted strategies to improve blood pressure control in a primary care clinic: A quality improvement project. International Journal of Cardiology Hypertension, 7. https://doi-org.spot.lib.auburn.edu/10.1016/j.ijchy.2020.100060
- Vamvakis, A., Gkaliagkousi, E., Triantafyllou, A., Gavriilaki, E., & Douma, S. (2017). Beneficial effects of nonpharmacological interventions in the management of essential hypertension. JRSM Cardiovascular Disease, 6, 1-6. https://doi.org/10.1177/2048004016683891