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EVALUATING THE EFFECTS OF EDUCATIONAL INTERVENTIONS IN HYPERTENSION PATIENTS

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Abstract:

Background: It is acknowledged that treating chronic illnesses with patient education can be advantageous. For hypertension patients seen at Primary Care Centers (PCC) and specialized Hypertension Units (SHU), we implemented an educational intervention (EI).

Aim: To test patient's awareness about hypertension and to verify the impact of this educational program.

Method: 120 hypertensive individuals participated in a multicenter quasi-experimental study. The oral and written information contained in EI covered the definition, etiology, cardiovascular risk factors, and methods of controlling hypertension. A self-administered questionnaire was utilized to assess patient's knowledge before and after EI.

Results: Fifty-two patients (mean age: 61 ± 13.3 years, 59% female) were from PCC, while 58 patients (48%) were from SHU. There were no variations in baseline characteristics between patients attending at PCC and SHU. Of the participants, 48% were aware of the concept of hypertension, which is defined as blood pressure of 140 mmHg or more, and 99% were aware of it following electrocardiography ($p < 0.001$). There was a correlation between low initial awareness of the hazards of hypertension and kidneys (54%) and eyes (58%). This knowledge rose to 100% following EI ($p < 0.001$ and $p < 0.001$, respectively). There was a notable increase in medicine knowledge (51% prior to and 87% following EI; $p = 0.004$).

Conclusion: This study demonstrates how EI might help patients learn more about hypertension. More research is need to see whether EI alters behavior over the long run, though, as this could improve optimal blood pressure regulation and halt the progression of renal disease.

Introduction

It is commonly acknowledged that patient education, especially self-management-focused material, can be helpful when treating chronic illnesses (1). In affluent nations, 40% of adults suffer from hypertension, a frequent long-term illness and public health concern (2). According to Wolf-Maier et al. (2003), the prevalence of hypertension in adults in Spain is 35%, and it rises to 60% in those over 60.(2)

Due to its risk factor for cardiovascular (CV) disorders, high blood pressure is one of the leading causes of death and disability globally (3,4). Moreover, research has consistently shown that high blood pressure increases the risk of end-stage kidney disease (ESKD) (5).According to Mathers et al. (2009), hypertension is thought to be responsible for 7.5 million deaths globally (12.8% of all deaths), which

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includes 57 million premature deaths (3.7%) and years of healthy life lost to disease and disability (referred to as disability-adjusted life years). (6) .According to Sicras-Mainar et al. (2008), uncontrolled high blood pressure can therefore lead to a lower quality of life, increased dependency, as well as higher healthcare and societal costs (7). Uncontrolled hypertension nevertheless persists worldwide, despite improvements in many nations' rates of detection and management of the condition over time (8).

In order to keep blood pressure below 140/90 mmHg, efforts have been made to develop guidelines for managing hypertension. These guidelines are based on medication treatment and therapeutic lifestyle modifications (9,10). Thus, a key component of hypertension care is patient education to encourage self-management and drug adherence. In patient education for therapeutic behavior change and risk factor management, nurses play a critical role (11,12).

Research conducted in Spain has demonstrated that patients' understanding of hypertension is low (13), but that their knowledge can be raised with an educational intervention (EI) (14). An analysis of an EI's efficacy in treating older adults with hypertension found a statistically significant rise in the level of knowledge (13). Furthermore, Svetkey et al. (2005) hypothesized that patients with greater access to health-related information and knowledge are more likely to participate in the therapy process, enhancing lifestyle changes that result in ideal blood pressure control and a decreased risk of cardiovascular disease.(15)

Objectives:

We conducted an EI which involved assessment of baseline knowledge of hypertension and related CV risk, as well as validating the impact of this intervention. The study brochure was supported by a vocal explanation provided by the EI. The leaflet covered the following topics: what constitutes chronic hypertension, how it is defined, what causes it, how to prevent uncontrolled hypertension, and how to manage blood pressure naturally and pharmaceutically.

Additionally, this educational program was designed to strengthen patient self-management by teaching self-monitoring blood pressure and keeping track of follow-up appointments, as well as strategies to improve adherence to therapeutic lifestyle modifications and medication regimens. Making decisions was also emphasized throughout the educational process.

MATERIALS AND METHODS

Pre-post-EI was implemented and assessed in 120 hypertensive patients as part of a quasi-experimental multi-center study design. In the Barcelona Metropolitan Area, Catalonia (Spain), these patients visited four Primary Care Centers (PCCs) and four specialized Hypertension Units (SHUs). Every patient was older than eighteen. The Hospital Clínic de Barcelona Research Ethics Committee approved the study. Patients under the age of eighteen, those with cognitive dysfunction (which would make it difficult for them to comprehend the instructional leaflet and fill out the questionnaire), and those who choose not to participate in the study were the exclusion criteria. Using non-probability sampling, participants were progressively gathered from each health center where the study was carried out based on patient desire to participate and daily appointment lists. A minimum of 14 patients would be recruited by each participating center. Nurses who were in charge of these patients and knowledgeable in the treatment

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of hypertension recruited patients. Patients were informed about the study and made clear that participation was entirely optional before they began. After accepting, participants were required to complete an informed consent form. The demographic information gathered were age, gender, the date of the hypertension diagnosis, the follow-up location, educational attainment, and employment status.

PRE/POST-TEST QUESTIONNAIRE

Before getting personalized education, participants were asked to complete a pre-test to determine their baseline knowledge about hypertension. This survey was modified from one that was made for a prior study (13) and utilized in a more recent investigation (13). It is advised to use the validated questionnaire (13) for the evaluation of emotional intelligence.
This survey was revised with some questions changed and new items included after it was examined and assessed by specialists from the Catalan Society of Hypertension's Nurses Working Group. This is a nine-block descriptive questionnaire with closed-ended questions and multiple-choice answers (Yes, No, don't know) . The questions in the first six blocks tested the patient's understanding of high blood pressure, its risk factors, food, medicine, and the advantages of leading a healthy lifestyle. Questions about the assistance of friends, family, and medical professionals, as well as questions about educational attainment and employment position, were included in the seventh and ninth blocks of independent variables. Before the questionnaire was utilized for EI, a pilot study with 16 patients—eight from PCCs and eight from SHUs—was conducted because it was an adaptation of an earlier one. This functioned to assess the modified questionnaire's overall technical quality and the ease with which the questions could be understood.Within a month of the interview, patients were asked to complete a post-test questionnaire.

STATISTICAL ANALYSIS

There was descriptive statistics research done. Frequencies and percentages were used to represent categorical variables. The mean and standard deviation were used to characterize continuous variables. A Student T test was used to compare the ages of the PCC and SHU groups, and Fisher exact tests or the Chi-Square test were employed as appropriate for categorical variables. Stuart's W0 statistic, which is comparable to the McNemar Test for 3×3 or higher tables, was utilized to gauge how much knowledge about hypertension had improved following the EI. P-Values were deemed statistically significant if they were less than 0.05. The statistical program SPSS 18.0 (IBM Corp., Chicago) was used for the analysis.

RESULTS

120 patients participated in this study; 62 (52%) were from PCCs and 58 (48%) were from SHUs. The participants' average age was 61 ± 13.3 years. Women made up 71 (or 59%). 36% of those with a diagnosis of hypertension had been following up for 0–5 years, 28% for 6–10 years, and 36% for more than 10 years (n = 43).
The patients' academic education level is displayed in Table 1; 34% of the patients did not finish their

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primary education, and 19% of them held a university degree. Of those who were unemployed, 14% were students, 34% were retirees, 17% were housewives, and 35% were employed (Table 2). Participants' responses indicated that 57% thought that the doctor and nurse shared responsibility for their blood pressure follow-up visits, 30% thought that the nursing staff alone, and 13% thought that the medical staff was alone in charge. Patients attending the PCCs and the SHUs did not differ statistically significantly in terms of age, sex, educational attainment, or employment status.

Table 1. Education levels

Without schooling	8.3% (10)
Uncompleted primary education	34.2% (41)
Completed primary education	24.2% (29)
Completed secondary education	14.2% (17)
University degree	19.2% (23)

Table 2. Occupational status

Unemployed	13% (16)
Employed	35% (42)
Retired	34% (41)
Housewives	17% (20)
Student	1% (1)

In terms of the participants' understanding of hypertension, the pre-intervention questionnaire indicated that only 48% of them properly answered that the condition is defined as ≥140/90 mmHg. However, the right response rate was 99% following the intervention, indicating a 51% improvement ($p < 0.001$). Pre-EI, 68% of patients answered "yes" when asked if hypertension is a chronic illness; post-EI, 98% of patients gave a favorable response ($p < 0.001$). When asked if they had gotten an explanation on hypertension, only 57% of respondents said yes prior to EI; this number rose to 98% after EI ($p < 0.001$).on the inquiries on the likelihood of hypertension and potential harm to the kidneys and eyes,

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there was a 46% ($p < 0.001$) and 42% ($p < 0.001$) improvement in understanding following enhanced information. Ninety-five percent of the patients in the study said that having friends and/or family support can help lead to better blood pressure control. Every single person (100%) said that their physicians, nurses, and chemists play a crucial role in their overall care.

DISCUSSION

The current study shows that patients with hypertension have very low baseline knowledge regarding the ailment and its risk to cardiovascular disease. However, compared to earlier research (13,16), knowledge is marginally better on a few items in the current questionnaire, notably the one addressing hypertension's status as a chronic illness. Surprisingly, 33% of these patients said that their healthcare professionals had not informed them about high blood pressure, and 10% said they were unsure if an explanation had been given, even though hypertension is a common public health issue. This ignorance of the concept of hypertension is consistent with the findings about the condition, which show that 52% of these patients were unaware that the ideal blood pressure range is less than 140/90 mmHg (9). Our research has led us to propose that a clinical computer system checklist or alert could be useful in reminding nurses to cover this topic when educating patients. This ignorance is also in line with other Spanish research that found that more than 50% of hypertension patients in Spain did not sufficiently follow their doctors' advice (17). This could explain why blood pressure control was inadequate in 65% of Spanish patients on antihypertensive medication regimens (18).

Prior to the EI, target organ damage in hypertension was widely recognized. Regarding which organs can be impacted, the right answers differed significantly. According to Graciani et al. (2008), the results show that the majority of respondents believed that the heart was the primary organ involved, with the kidneys, brain, and eyes being less at risk due to uncontrolled hypertension.(19) The latter is the main cause of morbidity and mortality among elderly patients, with a particular focus on stroke. In regards to medication, at first, 35% of the patients believed that high blood pressure could be managed solely with medication, and 14% were unaware of this; however, the recommended management of hypertension involves both therapeutic lifestyle modifications and antihypertensive drugs (9). It is important to consider the impact that a lack of information in this area may have on the adherence of therapeutic lifestyle modifications. It's also important to highlight that 11–12% of patients thought they could stop taking their medicine once their blood pressure was under control, or that they could change the dosage based on their blood pressure. If this idea is not changed, therapy results will suffer. Patients who adhered to treatment had a decreased risk of experiencing a cardiovascular incident than those who did not adhere to treatment or were not persistent with medication, according to Halpern's (2006) study (20). Therefore, the goal of patient education should be to dispel this myth and offer guidance and assistance with medication administration, food, and exercise. The significance of proper adherence to medication regimens and therapeutic lifestyle adjustments in the management of blood pressure should be emphasized at all follow-up appointments. The results of this study on medication indicate that patient education needs to be reinforced continuously. Even after EI, 6% of patients said they could change their medication's dosage based on their blood pressure readings, and 3% said they could stop

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taking their medication once their blood pressure was under control

However, based on an analysis of the knowledge level after EI, it seems that patients have benefited from individualized education that incorporates both written and spoken information in a variety of domains. This result is in line with another non-Spanish study that included hypertension patients and found that after EI, patients' level of knowledge also increased (21). Increasing patients' awareness of how to take care of themselves can help them adopt better lifestyle habits and improve their adherence to medication treatment (22). Research has also demonstrated a correlation between educating patients about CV risk factors and a reduction in CV events, particularly in cases where the risk is considerable (23). According to the patients in this study, having family or friends support them during their illness is crucial. This is in line with another study (24) that demonstrated the potential benefits of educational interventions combined with family members' support for patients' adherence behaviors. Adequate adherence to therapy can assist regulate blood pressure and, in turn, lessen the burden of this public health issue. Adequate adherence to therapy can assist regulate blood pressure and, in turn, lessen the burden of this public health issue, as suggested by Sicras-Mainar et al. (2008). (7) morbidity, mortality, and healthcare costs because uncontrolled hypertension, with or without a cardiovascular event, can raise ER, clinic, and/or hospital visits. Moreover, patients' ignorance of medication regimens may lead to poor adherence and the non-consumption of some recommended prescriptions, which would result in significant needless healthcare costs (25,26).

LIMITATIONS AND BENEFITS

The fact that the results of this study only demonstrated the short-term influence is one of its limitations. As such, it is unknown what effect this educational project will have in the long run. Nonetheless, our study has shown that EI improves patient knowledge in both general care and specialty care settings. Additionally, it has demonstrated that Spanish nurses can benefit from using the validated questionnaire to gauge patients' understanding of hypertension and the efficacy of their ER visits.

Conclusion

This study has shown the short-term effects of EI on the knowledge of hypertension patients. Additionally, it has demonstrated that Spanish nurses can assess the efficacy of their EIs in the context of hypertension with the help of this validated questionnaire.

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