Effects of the Hypertension self-management Program

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Abstract. This study was conducted to examine the effects of a Hypertension Self-Management Program (HSMP) for community-dwelling elderly patients. A one-group pretest-posttest design was used. Knowledge of hypertension, self-efficacy of the participants were examined with a structured self-report questionnaire and systolic and diastolic blood pressure were measured by an RN. Data collections was performed anonymously during May and June 2015, and were analyzed using a Wilcoxon signed rank test with IBM SPSS Statistics 21.0 version. The results of our study indicate that HSPM is effective to control blood. Therefore, the program will be able to be applied in intervention methods for efficient blood pressure control in elderly patients.

Keywords: Elderly, Hypertension, Knowledge, Self-efficacy, Blood pressure

1 Introduction

As the population of the world ages, the proportion of individuals with more than one disease (i.e., comorbidity) is increasing [1, 2]. the proportion of the elderly population in Korea is expected to increase to 40.1% by 2060[3]. The mortality rate of hypertensive disease per 100,000 population amounts to 10.0% [3].

However, if hypertensive patients’ blood pressure is well controlled, the complications caused by hypertension, such as cerebral vascular and cardiovascular diseases, can be reduced. Many studies demonstrate that an important factor among the determinants of self-management behavior is self-efficacy [4]. With increasing self-efficacy in patients with hypertension, health behaviors will be changed positively to control hypertension. As a way to enhance self-efficacy in this study, elderly subjects have selected educational topics for themselves, set and performed tasks according to lessons from a weekly class, for a period of eight weeks. We named this intervention program Hypertension Self-Management Program (HSMP) based on self-efficacy enhancement. HSPM will be more effective than any other one-way educational program, in order to improve self-management practices of elderly patients with hypertension. The aim of this study was to evaluate the effects of HSPM based on the theory of self-efficacy for controlled hypertension.

2 Methods

2.1 Study Design

This study is about a community-based HSPM and used a one-group pretest-posttest design by using a self-report structured and blood pressure measurement
2.2 Setting and participants

Setting: Based on a regional health survey, Gyeongju in South Korea, was identified as having a lower level of health status, based on factors such as mortality rate, morbidity rate, and level of health behavior during 3 years. Participant: The G*Power programs were used to ensure the statistical power of the study. The required sample size is at least 22 persons. Final study participants numbered 23 people.

2.3 Measurement and instruments

Blood pressure. Blood pressure was checked using a mercury sphygmomanometer (Jaewon medical Co., Busan, Korea). The blood pressure of all participants was checked twice, separated by a 5-minute interval, and the average of the measurements was used in the final analysis.

Knowledge of hypertension. We used the knowledge of hypertension tool developed by the Gyeongsangbukdo regional cardiovascular center [5] as a measure of the degree of hypertension knowledge of the participants. Higher scores indicate improved knowledge of hypertension.

Self-efficacy. We used the self-efficacy tool developed by the Ministry for Health, Welfare and Family Affairs and Korea Health Promotion foundation [6] as a measure of the degree of self-efficacy of the participants. Higher scores indicate that the individual’s self-efficacy has improved.

2.4 Procedures

This study was approved by the Institutional Review Board of Dongguk University Gyeongju Hospital, Gyeongju, Korea (approval code: 110757-210502-HR-01-02). After providing briefs on the research purpose and procedure, the participants were required to complete an informed consent form on this study. Questionnaires were administered and blood pressure was measured before and after the HSMP. BP was measured with a mercury sphygmomanometer after the patient had rested for at least 5 minutes with the arm at the same height as the heart. The average value was calculated from two measurements separated by a five-minute interval.

2.5 Data analysis

The data were analyzed with IBM SPSS Statistics 21.0 version and the specific data analysis was as follows: (a) general characteristics of the participants were calculated by frequency and percentage; (b) the mean and standard deviation of the levels of knowledge of hypertension, self-efficacy and systolic and diastolic blood pressure were calculated; (c) Wilcoxon signed rank test was used to evaluate the differences of the knowledge of hypertension, self-efficacy and systolic and diastolic blood pressure before and after HSPM.

3 Results

3.1 General characteristics of participants

The 23 subjects included 5 men (21.74%) and 18 women (78.26%). The mean age was 67.83 ± 5.8 years. About 91% were not employed. More than a majority of the participants received a primary school education or were uneducated.
### 3.2 Effects of the Hypertension Self-management Program

Results of the Hypertension Self-Management Program applied to the participants are presented in Table 1. Table 1 presents the significance of each variable. After applying the hypertension self-management program for participants, increased knowledge of hypertension is significant ($Z$=-3.17, $p$=.002). Similarly, systolic blood pressure ($Z$=-3.77, $p$=.000) and diastolic blood pressure ($Z$=-3.07, $p$=.002) were also significantly reduced. However, self-efficacy did not change significantly ($Z$=-1.29, $p$=.197).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
<td>7.43± .59</td>
<td>7.69± .70</td>
<td>-1.29</td>
<td>.197</td>
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<tr>
<td>Knowledge of hypertension</td>
<td>6.78± 1.31</td>
<td>8.35± 1.48</td>
<td>-3.17</td>
<td>.002</td>
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<td>Systolic blood pressure</td>
<td>148.91± 17.02</td>
<td>126.60±10.87</td>
<td>-3.77</td>
<td>.000</td>
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<tr>
<td>Diastolic blood pressure</td>
<td>83.91± 12.57</td>
<td>76.45± 9.61</td>
<td>-3.07</td>
<td>.002</td>
</tr>
</tbody>
</table>

### 4 Conclusions

According to the result of this study, self-efficacy in the elderly with hypertension who received the HSPM did not change significantly. The participants chose their learning topics themselves, set up homework related to these topics every week, and completed their homework until the next class. Even though this process was used as a method to improve self-efficacy, it is thought to have been a burden on elderly patients with low education levels.

After the HSMP, knowledge of hypertension was significantly higher than pre-test levels. This means that there was an effect of improving the knowledge of hypertension in the elderly. This result means that intervention with hypertension self-management is effective to efficiently manage the blood pressure in elderly patients.

Consequently the results of our study indicate that HSPM is effective in controlling blood pressure in community-dwelling elderly patients. Therefore, the program will be able to be applied in intervention methods for efficient blood pressure control in elderly patients.

### References

5. Gyeongsangbukdo regional cardiovascular center. Prevention and management of hypertension[Internet]. Daegu: Gyeongsangbukdo regional cardiovascular center,