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Original Article

Impact of a community based intervention program on awareness, treatment and control of hypertension in a rural Panchayat, Kerala, India



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ABSTRACT

Objective: Community based intervention to control hypertension is extremely limited in India. We conducted this study to find the effectiveness of a community based intervention program on the awareness, treatment and control of hypertension.

Methods: A baseline survey was conducted among 4627 adults aged ≥ 30 years (men 44%) selected by cluster sampling. Information was collected using a structured interview schedule by trained local volunteers. They measured weight, height, waist circumference and blood pressure using standard protocol. The volunteers monitored blood pressure at least once a month and educated the people in neighborhood groups on the need for regular medication and reducing risk factors of hypertension for a period of six years. A post intervention survey was conducted among 2263 adults aged ≥ 30 years (men 49%). Stepwise logistic regression analysis was done to find the odds of change in awareness, treatment and control of hypertension.

Results: The odds of awareness (OR 4.18, 95% CI 3.44–5.08), treatment (OR 3.44 CI 2.81–4.22) and control (OR 4.39 CI 3.36–5.73) of hypertension increased significantly in the post intervention survey compared to the baseline survey. Baseline hypertension prevalence of

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34.9% (CI 33.8–36.1) was reduced to 31.0% (CI 29.1–32.9) in the post intervention survey based on age adjusted analysis.

Conclusion: Our community based intervention using trained community based volunteers could increase awareness, treatment and control of hypertension among adult hypertensives.

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1. Introduction

Hypertension is an important public-health challenge worldwide affecting more than a quarter of the world's adult population.¹ High blood pressure was the leading risk factor for death in the world in 2004² which accounted for 12.8% of the total deaths. High blood pressure is associated with many risk factors like overweight, high salt intake, alcohol intake and physical inactivity.^{3–7} Hypertension is also directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in East Asian populations.⁸ Effective delivery of hypertension care in the country is likely to reduce cardiovascular mortality and morbidity.⁹

Hypertension is a greater population burden in developing countries compared to developed countries. Almost three quarters of the world's hypertensive population will be in developing countries by 2025. Hypertension prevalence in India was projected to rise from 20.6% in 2000 to 22.9% in 2025 among men and 20.9% to 23.6% among women.¹ Incidence of hypertension was 0.3 per 100¹⁰ in rural India in 1995 which increased to 3.4 in 2011.¹¹ Although the hypertension prevalence in the country is comparatively lower,¹ the huge population of the country results in a large number of people affected. Hypertension control can prevent 300,000 of the 1.5 million annual deaths from cardiovascular diseases in India.¹²

Kerala is the most advanced Indian state in epidemiological transition¹³ and the prevalence of most chronic diseases and their risk factors are the highest in the state.¹⁴ Various studies reported high prevalence of hypertension in the state among children,¹⁵ adults,¹⁶ middle aged¹⁷ and the elderly.^{18,19}

The role of appropriate, low cost and locally relevant health education interventions that enable self management of hypertension in the population including early detection of hypertension is very important in the context of developing countries.²⁰ Earlier findings evidenced the reduction of hypertension as a result of non-pharmacological intervention program.²¹ Health education intervention studies in different parts of the developed world indicated that appropriate and locally relevant strategies improved patient knowledge and compliance leading to small but potentially beneficial reductions in blood pressure.^{22–24} The beneficial impact of community based lifestyle intervention on hypertension was reported from developing countries like Pakistan,²⁵ Taiwan²⁶ and China.²⁷ Community based intervention on diabetes prevention was found to be effective in India.²⁸ Community based randomized controlled trials of non-pharmacological interventions such as physical exercise, salt reduction and yoga were found to be effective in prevention and control of hypertension among young Indians.^{29,30} However, these studies did not report awareness, treatment and control of

hypertension. Therefore we conducted this study to find out the effect of a community based intervention program on the awareness, treatment and control of hypertension.

2. Methods

This study was conducted in Kumarakom village Panchayat in Kottayam district of Kerala. It was a pre and post intervention study without a control. The baseline study was conducted in the year 2001 among 4955 adults selected using cluster sampling method. Each of the 12 wards of the Panchayat was considered as a cluster. Detailed methodology of the baseline study was published elsewhere.³¹ In brief, information on demographics, tobacco use, alcohol consumption, diet and self reported diabetes was collected using an interview schedule. Anthropometric measurements (height, weight, waist circumference) and blood pressure were measured using standard protocol. Two blood pressure measurements were obtained initially in a seated position, and if there was a difference of more than 10 mmHg either in systolic or diastolic blood pressure between the initial readings, a third measurement was obtained and the average of two or more readings was taken as the final value. Information on awareness and treatment of hypertension was also collected.

2.1. Intervention program

Two volunteers from each of the 12 wards of the village Panchayat were selected for the baseline survey by the elected representative of the ward based on a criteria including minimum educational qualification of 12 years of schooling. Except two, all the volunteers selected were women. These volunteers were trained to collect the data using the interview schedule and take anthropometric measurements and blood pressure using sphygmomanometer and stethoscope. An Omron electronic blood pressure apparatus was also used during the training program to enhance the quality of blood pressure measurement using sphygmomanometer. If any of the trainees was not sure of the blood pressure reading, s/he used the electronic blood pressure apparatus to cross check the readings.

After the baseline survey, the volunteers were given training for interventions along with 12 health workers from the primary health centre (PHC) of the village Panchayat, 18 Anganwadi workers (grass root level workers of social welfare department for child care, adolescent care and care of the elderly) and 12 elected ward members of the Panchayat. The volunteers belonged to the neighborhood groups (NHG) and had the support of the Panchayat and organizations like self help groups (SHGs). A video film on heart health produced by

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