



Effectiveness of Daily intake of lemon juice along with walking decrease the level of Blood Pressure among Hypertensive Clients

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ABSTRACT

Health is the level of functional or metabolic efficiency of a living organism. In humans, it is the ability of individuals or communities to adopt and self-managed, when facing physical mental or social changes. Hypertension is called as the "Silent Killer" because it is a disease that usually occurs without any symptoms. Lemon juice is also an excellent source of Arginine, the essential Amino acids that help lowering blood pressure. The present study aims to assess the effectiveness of Daily intake of lemon juice along with walking decrease the level of blood pressure among hypertensive clients between 40-70years. A quantitative quasi-experimental research design was conducted among 30 hypertensive clients who were selected by using non-probability convenience sampling technique. A structured interview was used to collect demographic data and hypertension was assessed by observational checklist. Pre-test was conducted before administering the lemon juice by observing the blood pressure level using Observed Checklist method among the hypertensive clients. The time for assessment varied from 15 - 20 minutes. The Lemon juice of 250ml was administered along with walking to the samples and immediately after 1 hour, post-test was conducted by observation checklist. The study finding clearly infers that there was a significant reduction in the level of hypertension in the post-test which clearly infers that intake of lemon juice along with walking proves to be effective in reducing the level of hypertension and improves the quality of life of the hypertensive clients.

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INTRODUCTION

Great nutrition is an essential segment of well being. Through hundreds of years, food has been per-

ceived as significant for individuals in well being and disease. (Hara, 1990) The historical backdrop of man has been to a huge degree, a battle to acquire food. (Kamiwaki *et al.*, 1994) It has been accounted for that food materials, for example, tea catechins, cacao lignin, and wheat grain hemicellulose were found to suppressively affect circulatory strain. (Kodama *et al.*, 1996)

A few investigations featured lemon as a significant well being advancing organic product plentiful in phenolic mixes just as nutrients, minerals, dietary filaments, basic oils, and carotenoids (González-Molina *et al.*, 2010). The suppressive impact of lemon juice and its unrefined flavonoid on circulatory strain has been accounted for in SHR (Miyake *et al.*, 1998). The water concentrate of lemon strips additionally suppressively affected circula-

tory strain in SHR (Kumamoto *et al.*, 1984; Mat-subara *et al.*, 1985). Late examinations uncovered that the impact of day by day lemon admission on boundaries identified with metabolic condition in sound ladies and indicated that the measure of lemon consumption had a huge negative connection with systolic blood pressure (Domoto *et al.*, 2010). Daily strolling improves the circulatory strain in humans (Lee *et al.*, 2010; Kato *et al.*, 2014).

Therefore, the aim of this study was to assess the effectiveness of Daily intake of lemon juice along with walking decrease the level of blood pressure among hypertensive clients between 40-70years. The purpose of the study,

1. To assess the level of blood pressure level among hypertensive clients.
2. To evaluate the effectiveness of daily intake of lemon juice along with walking in reducing the blood pressure level among hypertensive clients
3. To determine the association between the level of blood pressure and selected demographic variables.

MATERIALS AND METHODS

A quantitative approach with quasi-experimental research design was used to conduct the study at Kondencheri Village, Chennai. 30 samples were selected by using a non-probability convenient sampling technique. The criteria for sample selection are clients who have only hypertension, willing to participate and are able to converse in Tamil. The exclusion criteria for the samples are who are willing to participate and clients who are not present at the time of data collection. The data collection period was done with prior permission from the Principal of Saveetha College of Nursing and an authorized setting permission was obtained from Kondencheri Village, Chennai. The purpose of the study was explained to the hypertensive clients and consent was obtained from them. The confidentiality of the data collected was assured to the samples. Structured interview was used to collect demographic data and observation checklist was used to assess hypertension. On an average 5 samples was assessed per day. The time for assessment varied from 15 - 20 minutes. The Lemon juice of 250ml was administered along with walking to the samples and immediately after 1 hour, post-test was conducted by observation checklist. The data were analyzed using descriptive and inferential statistics. The sample characteristics were described using frequency

and percentage. Student paired 't' test was used to assess the effectiveness of lemon juice with along with walking between the pretest and post-test. Chi-square was used to associate the post-test level of hypertension with the selected demographic variables.

RESULTS AND DISCUSSION

Section A

Sample characteristics

Among 30 samples, most of them 14(46.7%) were in the age group of 51 – 60, 17(56.7%) were female, 14(46.7%) were Illiterate, 11(36.7%) were coolie, 16(53.4%) were from nuclear family, 16(53.4%) were moderate workers, 16(53.4%) had an income of <Rs.5,000, 26(86.7%) were married, 22(73.4%) were non – vegetarian, 20(66.6%) had no bad habits, 30(100%) were residing in the rural area, 16(53.4%) received previous information through family members.

Section B

Assessment of level of hypertension among hypertensive clients

With respect to systolic blood pressure in the pretest, 20(66.67) had stage-I hypertension, 8(26.66%) had stage-II hypertension and 2(6.67%) had pre-hypertension. With respect to diastolic blood pressure in the pretest, 20(66.67) had stage-I hypertension, 8(23.33%) had stage-II hypertension and 4(10%) had pre-hypertension. (Table 1)

Regarding systolic BP after the administration of lemon juice along with walking in the post-test, 18(60%) had pre-hypertension and 12(40%) had stage – I hypertension and with regard to diastolic BP 16(53.33%) had pre-hypertension and 14(46.67%) had stage-I hypertension. (Table 2)

Section C

Effectiveness of evaluating the effectiveness of daily intake of lemon juice along with walking in reducing the blood pressure level among hypertensive clients

The present study depicts that with regard to systolic blood pressure the pretest mean score was 144.94 ± 12.35 and the post-test mean score was 132.22 ± 11.53 . The mean difference score was 12.72. The calculated paired 't' value of $t = 13.796$ was found to be statistically significant at $p < 0.05$. (Table 3)

The present study also shows that with regard to diastolic blood pressure the pretest mean score was 94.25 ± 8.85 and the post-test mean score was

Table 1: Frequency and percentage distribution of pretest level of hypertension among hypertensive clients

Classification of Hypertension		Systolic BP		Diastolic BP	
		No.	%	No.	%
Pre Hypertension	120 – 139/80 – 89	2	6.67	3	10.0
Stage – I	140 – 159/90 – 99	20	66.67	20	66.67
Stage – II	≥160/≥100	8	26.66	7	23.33

Table 2: Frequency and percentage distribution of post-test level of hypertension among hypertensive clients

Classification of Hypertension		Systolic BP		Diastolic BP	
		No.	%	No.	%
Pre Hypertension	120 – 139/80 – 89	18	60.0	16	53.33
Stage – I	140 – 159/90 – 99	12	40.0	14	46.67
Stage – II	≥160/≥100	-	-	-	-

Table 3: Comparison of pretest and post-test systolic blood pressure among hypertensive clients.

Test	Mean	SD	Mean Difference	't' value
Pretest	144.94	12.35	12.72	13.796*
Post Test	132.22	11.53		P=0.005(S)

*p<0.05, S – Significant

Table 4: Comparison of pretest and post-test diastolic blood pressure among hypertensive clients.

Test	Mean	SD	Mean Difference	't' value
Pretest	94.25	8.85	7.42	5.492*
Post Test	86.83	10.85		P=0.005(S)

*p<0.05, S – Significant

86.83±10.85. The mean difference score was 7.42. The calculated paired 't' value of t = 5.492 was found to be statistically significant at p<0.05. (Table 4)

Another study was also supported by (Geleijnse *et al.*, 2003). Blood pressure response to changes in sodium and potassium intake: a meta regression analysis of randomized trials. The findings show that reduced intake of sodium and increased intake of potassium could make an important contribution to the prevention of hypertension, especially in populations with elevated blood pressure. (Geleijnse *et al.*, 2003)

The study finding shows that, none of the demographic variables had not shown statistically significant association with blood pressure among hypertensive clients.

CONCLUSIONS

The present study assessed the effectiveness of Daily intake of lemon juice along with walking decrease

the level of blood pressure among hypertensive clients between 40-70years. The results revealed that lemon juice provided to hypertensive clients along with walking was proved to be effective and there was significant reduction in the level of hypertension among hypertensive clients thereby improving their quality of life.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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REFERENCES

Domoto, T., Ishihara, K., Miyake, Y., Hiramitsu, M., Takatera, K., Kato, Y., Takigawa, A. 2010. Effect of daily lemon intake on a range of parameters related to metabolic syndrome. *Health Sciences*,

- 26(4):210–218.
- Geleijnse, J. M., Kok, F. J., Grobbee, D. E. 2003. Blood pressure response to changes in sodium and potassium intake: a metaregression analysis of randomised trials. *Journal of Human Hypertension*, 17(7):471–480.
- González-Molina, E., Domínguez-Perles, R., Moreno, D. A., García-Viguera, C. 2010. Natural bioactive compounds of Citrus limon for food and health. *Journal of Pharmaceutical and Biomedical Analysis*, 51(2):327–345.
- Hara, Y. 1990. Hypotensive effect of tea catechins on blood pressure of rats. *Nippon Eiyo Shokuryo Gakkaishi (J Jpn Soc Nutr Food Sci)*, 43:345–348.
- Kamiwaki, T., Tsuji, K., Nakagawa, Y. 1994. Effects of Cacao Lignin on Blood Pressure and Lipid Metabolism in Spontaneously Hypertensive Rats. *Journal of the agricultural chemical society of Japan*, 68(5):957–965.
- Kato, Y., Domoto, T., Hiramitsu, M., Katagiri, T., Sato, K., Miyake, Y., Aoi, S., Ishihara, K., Ikeda, H., Umei, N., Takigawa, A., Harada, T. 2014. Effect on Blood Pressure of Daily Lemon Ingestion and Walking. *Journal of Nutrition and Metabolism*, 2014:1–6.
- Kodama, T., Shiiba, K., Tsuji, K. 1996. Suppressive Effect of Wheat-bran Hemicellulose on Blood Pressure in Spontaneously Hypertensive Rats. *Nippon Eiyo Shokuryo Gakkaishi*, 49(2):101–105.
- Kumamoto, H., Matsubara, Y., Iizuka, Y., Murakami, T., Okamoto, K., Miyake, H., Yokoi, K. 1984. Structure and hypotensive effect of flavonoid glycosides in lemon peelings. *Journal of the Agricultural Chemical Society of Japan (Japan)*, 58(2):137–143.
- Lee, L.-L., Watson, M. C., Mulvaney, C. A., Tsai, C.-C., Lo, S.-F. 2010. The effect of walking intervention on blood pressure control: A systematic review. *International Journal of Nursing Studies*, 47(12):1545–1561.
- Matsubara, Y., Kumamoto, H., Iizuka, Y., Murakami, T., Okamoto, K., Miyake, H., Yokoi, K. 1985. Structure and hypotensive effect of flavonoid glycosides in Citrus unshiu peelings. *Agricultural and biological chemistry*, 49(4):909–914.
- Miyake, Y., Kuzuya, K., Ueno, C., Katayama, N., Hayakawa, T., Tsuge, H., Osawa, T. 1998. Suppressive Effect of Components in Lemon Juice on Blood Pressure in Spontaneously Hypertensive Rats. *Food Science and Technology International, Tokyo*, 4(1):29–32.