Lorestan University of Medical Sciences

Faculty of Khorramabad Nursing &Midwifery

Title:

The effect of L-arginine on blood pressure and cognitive function in elderly people with hypertension

By: **Somayeh Rezaei moghadam**

A Thesis

Presented for the

Degree of Master of Sciences

In Geriatric care nursing

Thesis Supervisor: Dr. Afsaneh Biranvand

Thesis Advisors: Dr. Shirin Hasanvand

Dr. Sodabeh Zareh

February,2026

Abstract

Background: Hypertension is one of the most prevalent chronic disorders among the elderly. This condition not only increases the risk of cardiovascular diseases and stroke but can also affect cognitive function by reducing cerebral blood flow. This study aimed to determine the effect of L-arginine on blood pressure and cognitive function in elderly patients with hypertension.

Methods: In this triple-blind clinical trial, 74 elderly patients with hypertension were randomly assigned into two groups (intervention and control) using block randomization. The intervention group received 2 grams of L-arginine capsules twice daily, while the control group received a placebo similar in appearance and packaging. Blood pressure and cognitive function (via the Montreal Cognitive Assessment [MoCA] questionnaire) were evaluated before and after the intervention. Data were analyzed using SPSS software (version 26) through descriptive statistics, independent t-tests, paired t-tests, and analysis of covariance (ANCOVA).

Results: The results indicated that in the L-arginine group, both systolic and diastolic blood pressure significantly decreased compared to the control group ($P < 0.001$). Furthermore, cognitive function scores in the intervention group significantly improved compared to the control group ($P < 0.001$). These findings emphasize the close relationship between cardiovascular health and cognitive function.

Conclusion: The results of this study suggest that L-arginine supplementation, when administered based on evidence-based clinical practice, can serve multiple objectives in the management of hypertension, effectively preventing cardiovascular complications while simultaneously supporting cognitive and mental abilities.

Keywords: L-arginine, Blood pressure, Cognitive function, Elderly, Hypertension.