

# Pengaruh Suplementasi Vitamin D Terhadap Kadar 25(OH)D Serum dan Tekanan Darah Pada Lanjut Usia di Panti Werdha: Uji Acak Terkendali Tersamar Ganda = Effect of Vitamin D Supplementation on Serum 25(OH)D levels and Blood Pressure in The Elderly in Nursing House: A Double-Blind, Randomized Placebo-Controlled Trial

Ferawaty, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=9999920530585&lokasi=lokal>

---

## Abstrak

Hipertensi merupakan penyakit kardiovaskular yang paling umum dan paling banyak diderita, terutama oleh lanjut usia (lansia). Beberapa penelitian menunjukkan vitamin D berperan dalam tekanan darah. Pada lansia kadar 25(OH)D menurun karena kurangnya paparan sinar matahari dan asupan makanan yang mengandung vitamin D. Kekurangan vitamin D dapat dicegah, salah satunya dengan suplementasi. Penelitian ini merupakan penelitian eksperimental dengan desain uji acak terkendali tersamar ganda pada lansia di Panti Sosial Tresna Werdha Budi Mulia 1 bulan April sampai Juni 2023 dengan tujuan menganalisis pengaruh suplementasi vitamin D terhadap kadar 25(OH)D dan tekanan darah. Kadar 25(OH)D serum diperiksa menggunakan metode Chemiluminescent Immunoassay (CLIA), tekanan darah diperiksa menggunakan sphygmomanometer digital. Suplementasi diberikan 1 kali perhari selama 8 minggu, untuk kelompok kontrol diberikan plasebo sedangkan untuk kelompok perlakuan diberikan vitamin D dengan dosis 2000IU (subjek Insufisiensi) dan 4000IU (subjek defisiensi). 62 subjek penelitian berusia 60-89 tahun (median 67 tahun) ikut serta dalam penelitian ini dan terbagi secara random menjadi 30 subjek kelompok kontrol dan 32 subjek kelompok perlakuan. Peningkatan kadar 25(OH)D pada kelompok kontrol  $23 \pm 4,87$  ng/mL menjadi  $27,3 \pm 7,34$  ng/mL ( $p=0,000$ ), pada kelompok perlakuan  $17,9 \pm 4,38$  ng/mL menjadi  $36,07 \pm 9,84$  ng/mL ( $p=0,000$ ). Analisis rerata perubahan menunjukkan bahwa suplementasi vitamin D meningkatkan kadar 25(OH)D secara bermakna ( $D = 4,2 \pm 2,47$  ng/mL pada kelompok kontrol dan  $D = 18,17 \pm 5,46$  ng/mL pada kelompok perlakuan;  $p = 0.000$ ). Penurunan tekanan darah sistolik pada kelompok kontrol  $133,9(121 - 159,5)$  mmHg menjadi  $129,3(96 - 159)$  mmHg ( $p=0,027$ ), pada kelompok perlakuan  $135,3(121 - 180)$  mmHg menjadi  $126(101 - 153)$  mmHg ( $p=0,000$ ). Penurunan tekanan darah diastolik pada kelompok kontrol  $89,6(80 - 105)$  mmHg menjadi  $82,4(64 - 103)$  mmHg ( $p=0,000$ ), pada kelompok perlakuan  $89,2(81,5 - 98,5)$  mmHg menjadi  $80,8 (67 - 90)$  mmHg ( $p=0,000$ ). Akan tetapi, analisis rerata perubahan menunjukkan bahwa suplementasi vitamin D tidak menyebabkan penurunan tekanan darah sistolik ( $D = -4,6(-25 - -0,5)$  mmHg pada kelompok kontrol dan  $D = -9,2 (-20 - -27)$  mmHg pada kelompok perlakuan;  $p = 0.109$ ) dan tekanan darah diastolik secara bermakna ( $D = -7,2 (-16 - -2)$  mmHg pada kelompok kontrol dan  $D = -8,4 (-14,5 - -8,5)$  mmHg pada kelompok perlakuan;  $p=0,559$ ). Suplementasi vitamin D dapat meningkatkan kadar 25(OH)D secara bermakna, tetapi tidak menurunkan tekanan darah sistolik dan diastolik secara bermakna pada lansia.

.....Hypertension is the most common cardiovascular disease, especially in the elderly. Previous studies have reported that vitamin D play a role in blood pressure. In elderly, serum 25(OH)D levels decrease due to lack of sun exposure and intake of food sources of vitamin D. Vitamin D deficiency can be prevented by supplementation. This is an experimental study with double-blind randomized placebo-controlled trial (RCT) on elderly subjects at the Tresna Werdha Budi Mulia 1 Social Institution from April until June 2023

to analyze the effect of vitamin D supplementation on serum 25(OH)D levels and blood pressure. Serum 25(OH)D levels were examined using Chemiluminescent Immunoassay (CLIA) method, blood pressure was checked using digital sphygmomanometer. Supplementation was given once per day for 8 weeks, control group was given a placebo while treatment group was given vitamin D3 supplementation at dose of 2000IU (insufficiency subjects) and 4000IU (deficiency subjects). A total of 62 research subjects aged 60-89 years (median 67 years) participated in this study and randomized into 30 control group subjects and 32 treatment group subjects. The increase in serum 25(OH)D levels in the control group was  $23 \pm 4,87$  ng/mL to  $27,3 \pm 7,34$  ng/mL ( $p = 0.000$ ), the treatment group was  $17,9 \pm 4,38$  ng/mL to  $36,07 \pm 9,84$  ng/mL ( $p = 0.000$ ). Data analysis showed that vitamin D supplementation significantly increased 25(OH)D levels in the treatment group compared to the control group ( $D = 4,2 \pm 2,47$  ng/mL for control group and  $D = 18,17 \pm 5,46$  ng/mL for treatment group;  $p = 0.000$ ). The decrease in systolic blood pressure in the control group was  $133,9(121 - 159,5)$  mmHg to  $129,3(96 - 159)$  mmHg ( $p = 0.027$ ), the treatment group was  $135,3(121 - 180)$  mmHg to  $126(101 - 153)$  mmHg ( $p = 0.000$ ). The decrease in diastolic blood pressure in the control group was  $89,6(80 - 105)$  mmHg to  $82,4(64 - 103)$  mmHg ( $p = 0.000$ ), the treatment group was  $89,2(81,5 - 98,5)$  mmHg to  $80,8 (67 - 90)$  mmHg ( $p = 0.000$ ). However, data analysis showed that vitamin D supplementation did not cause a significant reduction in systolic blood pressure ( $D = -4,6(-25 - -0,5)$  mmHg for control group and  $D = -9,2 (-20 - -27)$  mmHg for treatment group;  $p = 0.109$ ) and diastolic blood pressure in the treatment group compared to the control group ( $D = -7,2 (-16 - -2)$  mmHg for control group and  $D = -8,4(-14,5 - -8,5)$  mmHg for treatment group;  $p = 0.559$ ). Vitamin D supplementation significantly increase serum 25(OH)D levels, but not significantly reduce systolic and diastolic blood pressure in the elderly.