



Abstract Type : Poster exhibition

Abstract Submission No.: A-0409

Abstract Topic : Transplantation

Changes in Vascular Stiffness, Blood Pressure, and Dephosphorylated-uncarboxylated Matrix Gla protein After Vitamin K supplementation in Kidney Transplant Recipients: A Systematic Review and Meta-Analysis Randomized Controlled Trials

Rafik Prabowo¹, Wida Wahyu Puspitaningrum², Mohammad Alvian Subhakti³, Feisal Hilman⁴

¹Department of General Practitioner, Community Health Center of Rambah, Rokan Hulu, Indonesia

²Department of General Practitioner, Surya Insani Hospital, Rokan Hulu, Riau, Indonesia

³Department of Emergency Unit, Cakra Husada Hospital Klaten, Central Java, Indonesia

⁴Department of Resident, Universitas Muslim Indonesia, South Sulawesi, Indonesia

Objectives : Vitamin K deficiency often occurs in kidney transplant recipients, which will increase the concentration of dephosphorylated uncarboxylated matrix Gla protein (dp-ucMGP). This condition has an impact on vascular stiffness and the recipient's cardiovascular system. This meta-analysis aims to determine the changes in vascular stiffness, blood pressure, and dephosphorylated-uncarboxylated matrix Gla protein after vitamin K supplementation in kidney transplant recipients.

Methods : The systematic review and meta-analysis are reported based on PRISMA guidelines. The Embase, Cochrane Library, PubMed, and Web of Science databases were comprehensively searched for randomized controlled trials reporting the change of vascular stiffness, blood pressure, and dephosphorylated-uncarboxylated matrix Gla protein (dp-ucMGP) after vitamin K supplementation in kidney transplant recipients during the past 10 years. Outcomes included Vascular Stiffness (VS), Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP), and dp-ucMGP after vitamin K supplementation. The results were reported as the Mean Difference (MD) with 95% confidence intervals (CI) and a random-effects model.

Results : The meta-analysis included 4 RCTs that fulfilled the inclusion criteria with a total of 286 participants. Vitamin K supplementation significantly reduced the progression of vascular stiffness (m/s) compared with the control group (MD -0.72; 95%CI [-1.26, -2.82]; $I^2=90\%$; $P=0.01$). There is showed significantly reduced the dp-ucMGP (pmol/L) after Vitamin K supplementation compared with the control group (MD -325.76; 95%CI [-404, -247]; $I^2=94\%$; $P<0.001$). Vitamin K supplementation significantly reduced the SBP and DBP (mmHg) compared with the control group (MD -3.15; 95%CI [-3.38, -2.91]; $I^2=41\%$; $P<0.001$; MD -2.95; 95%CI [-4.48, -1.43]; $I^2=95\%$; $P<0.001$; respectively).

Conclusions : Vitamin K supplementation has an effect on changing vascular stiffness, blood pressure, and dp-ucGMP compared with the control group in kidney transplant recipients. Further research is warranted to determine the optimal treatment protocol of vitamin K for kidney transplant patients.

Forest Plot-Kidney.jpg



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

KSN SEOUL, KOREA
2026

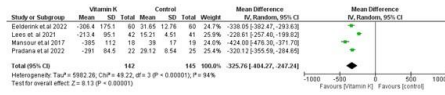
The 46th Annual Meeting of the Korean Society of Nephrology



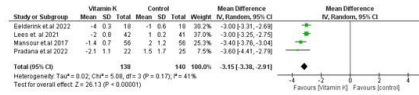
Jun 11 (Thu) – 14 (Sun), 2026

COEX, Seoul, Korea

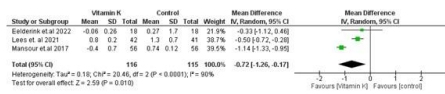
Forest Plot for dp-ucMGP (pmol/L)



Forest Plot for Systolic Blood Pressure (mmHg)



Forest Plot for Vascular Stiffness (m/s)



Forest Plot for Diastolic Blood Pressure (mmHg)

