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# Effect of Lanthanum Carbonate on Coronary Artery Calcification in Patients on Hemodialysis

**Nadira Asad**[1], Ema Novalia Dewi Kurnia Sari[4], Umi Hani Vismayanti Lismana[3], Agil Noviar Alvirosa[2]
[1]Department of Emergency, Bhayangkara Nganjuk Hospital, Indonesia
[2]Department of Emergency, Intan Medika Hospital, Indonesia
[3]Department of Emergency, Hermina Hospital Solo, Indonesia
[4]Department of Medicine, Sebelas Maret University (postgraduate), Indonesia

**Objectives:** Abnormalities in mineral metabolism in hemodialysis patients are related to arterial calcification. Lanthanum carbonate (LC) is a non-calcium-containing phosphate binder that reduced oral calcium load. This study aimed to assess the effect of lanthanum carbonate on coronary artery calcification (CAC) in patients on hemodialysis.

**Methods:** Searches were conducted in PubMed database within the past ten years to find randomized controlled trials which assessed the effect of lanthanum carbonate (LC) on coronary artery calcification in patients on hemodialysis. Meta-analysis was performed for CAC score, serum levels of calcium, and phosphate. The size of the overall effect was calculated as mean difference (MD) and corresponding standard deviation (SD). Data were pooled by using fix or random-effect model based on heterogeneity test result ($I^2$).

**Results:** Three studies involving 145 participants were included in this meta-analysis. The result showed that LC significantly slowed the progression of CAC compared to non-LC in 6 months (-44.66, 95% CI -84.23 to -5.10; p= 0.03) and 12 months (-74.13, 95% CI -109.26 to -39.00; p= <0.0001). Serum calcium level decreased significantly in LC group compared to non-LC group (-3.19 mg/dL, 95% CI -6.37 to -0.01; p= 0.05). There was no difference in the serum phosphate level between LC and non-LC group (-0.40 mg/dL, 95% CI -2.07 to1.27, p= 0.64).

**Conclusions:** Our meta-analysis suggested that LC might delay the progression of CAC and decrease serum calcium level in patients on hemodialysis. However, further studies with a large-scale population are needed to confirm this result.

Figure 1. Systematic review flow chart study inclusion

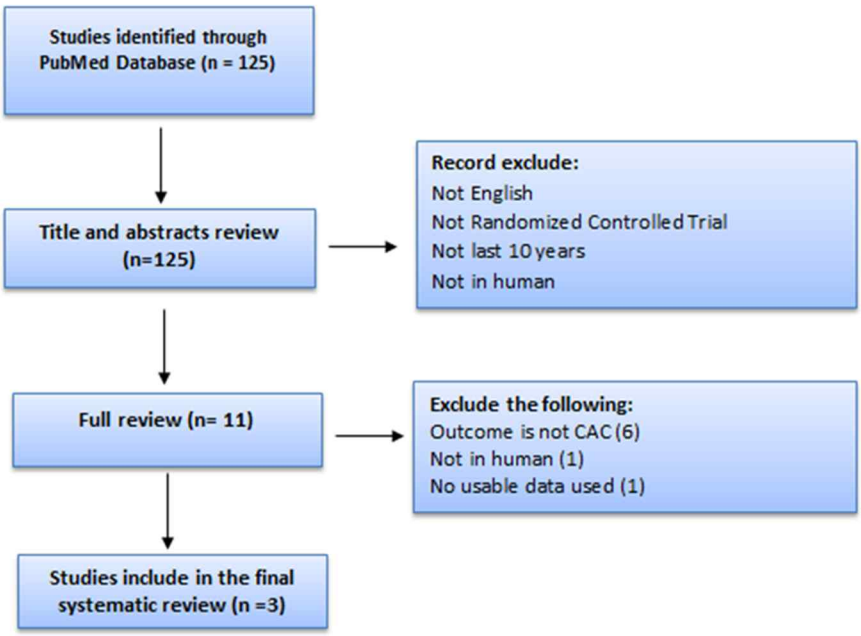


Figure 2. a) Forest plot of effect lanthanum carbonate on CAC in 6 months, b) CAC in 12 months c) serum calcium level, and d) serum phosphate level