

# Prevalence of Sarcopenia and Its Impact on Cardiovascular Events and Mortality among Dialysis Patients: A Systematic Review and Meta-analysis.

Wannasit Wathanavasin MD<sup>1</sup>, Athiphat Banjongjit MD<sup>2</sup>, Yingyos Avihingsanon, MD<sup>3</sup>, Kearkiat Praditpornsilpa, MD<sup>3</sup>, Kriang Tungsanga MD<sup>3</sup>, Somchai Eiam-Ong, MD<sup>3</sup>, Paweena Susantitaphong, MD, Ph.D<sup>3,4</sup>

<sup>1</sup>Nephrology unit, Department of Medicine, Charoenkrung Pracharak Hospital, Bangkok, Thailand.

<sup>2</sup>Nephrology unit, Department of Medicine, Vichaiyut Hospital, Bangkok, Thailand.

<sup>3</sup>Division of Nephrology, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok Thailand.

<sup>4</sup>Research Unit for Metabolic Bone Disease in CKD patients, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.

## Abstract

**Background:** Sarcopenia in end stage kidney disease patients requiring dialysis is a frequent complication but remains an under-recognized problem. This meta-analysis was conducted to determine the global prevalence of sarcopenia and explored whether its impacts on the clinical outcomes in dialysis patients.

**Methods:** The eligible studies were searched from PubMed, Scopus, and Cochrane Central Register of Controlled trials up to 31 March 2022. We included studies that reported the prevalence of sarcopenia and clinical outcomes. The random-effects model was used to calculate pooled prevalence rate. Associations between sarcopenia and clinical outcomes were expressed as odds ratio (OR) and 95% confidence interval (CI). Cochrane's Q statistics and  $I^2$  statistics were used to measure the presence of heterogeneity. Publication bias was also tested by the Funnel plot and Egger's test.

**Results:** This meta-analysis included 41 studies with 7,576 patients. The pooled prevalence of sarcopenia in dialysis patients was 25.6% (95% CI 22.1 to 29.4%). Sarcopenia was significantly associated with higher mortality risk [adjusted OR 1.83 (95% CI 1.40 to 2.39)] and cardiovascular events [adjusted OR 3.80 (95% CI 1.79 to 8.09)]. Additionally, both low muscle mass and low muscle strength were independently related to increased mortality risk in dialysis patients [OR 1.71; (95% CI 1.20 to 2.44), OR 2.15 (95% CI 1.51 to 3.07), respectively].

**Conclusions:** This meta-analysis revealed that sarcopenia was highly prevalent among dialysis patients and shown to be an important predictor of cardiovascular events and mortality. Future intervention research to alleviate this disease burden in dialysis patients is needed.

**Key words:** PEW; protein-energy wasting; frailty; malnutrition; ESKD; ESRD

**Corresponding author:** Wannasit Wathanavasin

**Email:** kid\_quey@hotmail.com

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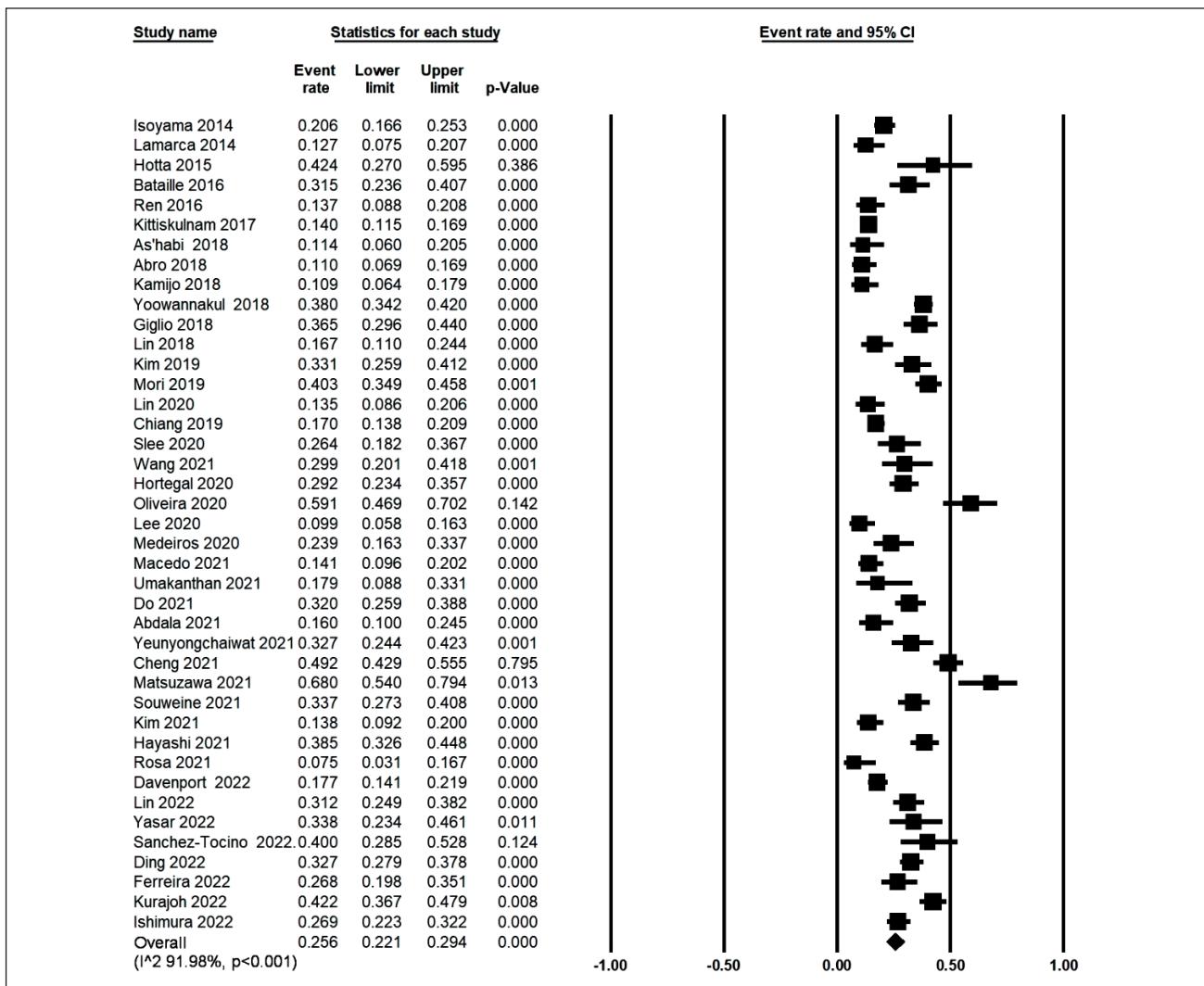


Figure 1

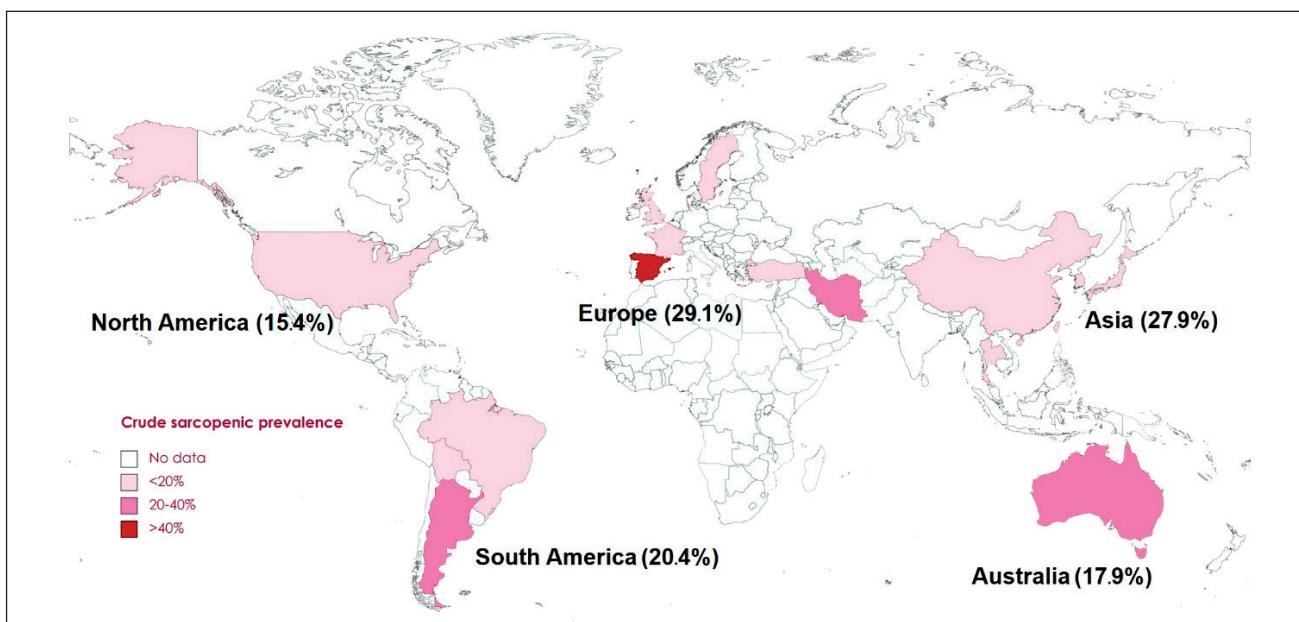


Figure 2

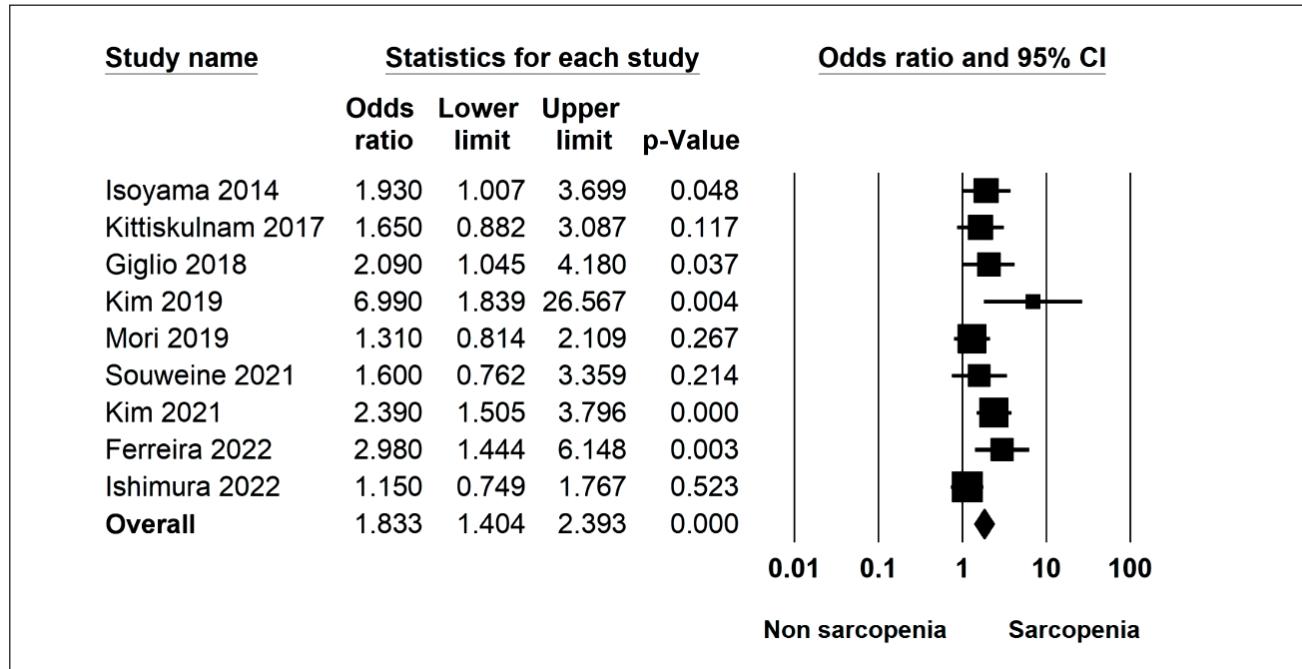


Figure 3