

Letter to the Editor

Omega-3 polyunsaturated fatty acid supplementation in chronic kidney disease and its effects on cardiovascular mortality and kidney disease progression



Cardiovascular death is the leading cause of mortality in patient with advanced end stage renal disease [1]. Omega 3 Polyunsaturated fatty acid has been studied in trials as a preventive strategy for cardiovascular disease in patient with chronic kidney disease, as the usual preventive measures like statins and antiplatelet are less effective as compared to that in normal population [2,3]. A recent meta-analysis published in the journal of *clinical nutrition* by Saglimbene, V.M et al. titled-“Effects of omega-3 polyunsaturated fatty acid intake in patients with chronic kidney disease: Systematic review and meta-analysis of randomized controlled trials” [4] provided an updated information regarding the usefulness of Omega 3 fatty acid in chronic kidney disease. The meta-analysis had the following

two observations to make. First omega 3 fatty acid supplementation reduced the risk of cardiovascular mortality for patient with chronic kidney disease (On haemodialysis + Transplant patients). Second omega 3 fatty acid supplementation reduced the risk of progression to end stage renal disease in patients with chronic kidney disease not receiving renal replacement therapy. However we had the following observation and interpretation of the result to me made. We performed a trial sequential analysis of the published meta-analysis results for each of the above mentioned outcome [5]. We estimated an adjusted information size of 1314 based on a relative risk reduction of 56%, Alpha error (two sided) of 5%, beta error of 20%, incidence in the control arm of 5.26% and diversity of 0% for cardiovascular mortality

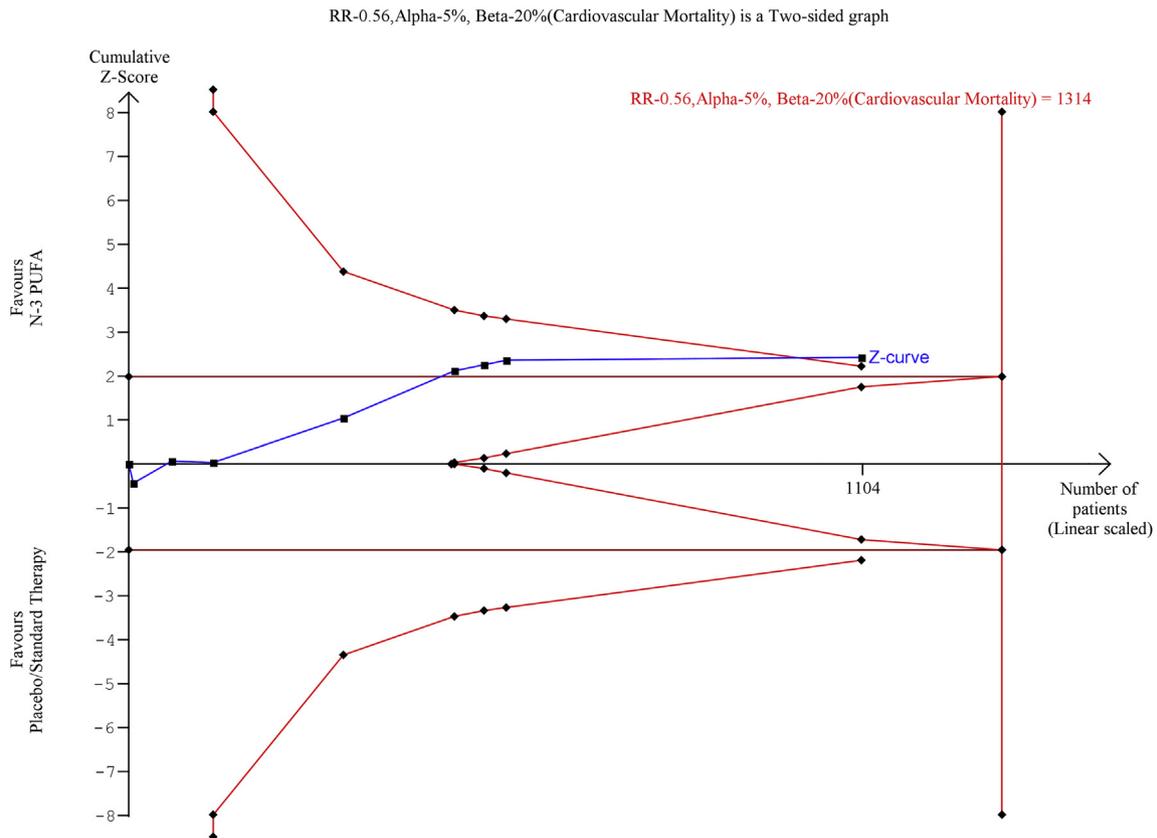


Fig. 1. Trial sequential plot for cardiovascular mortality.

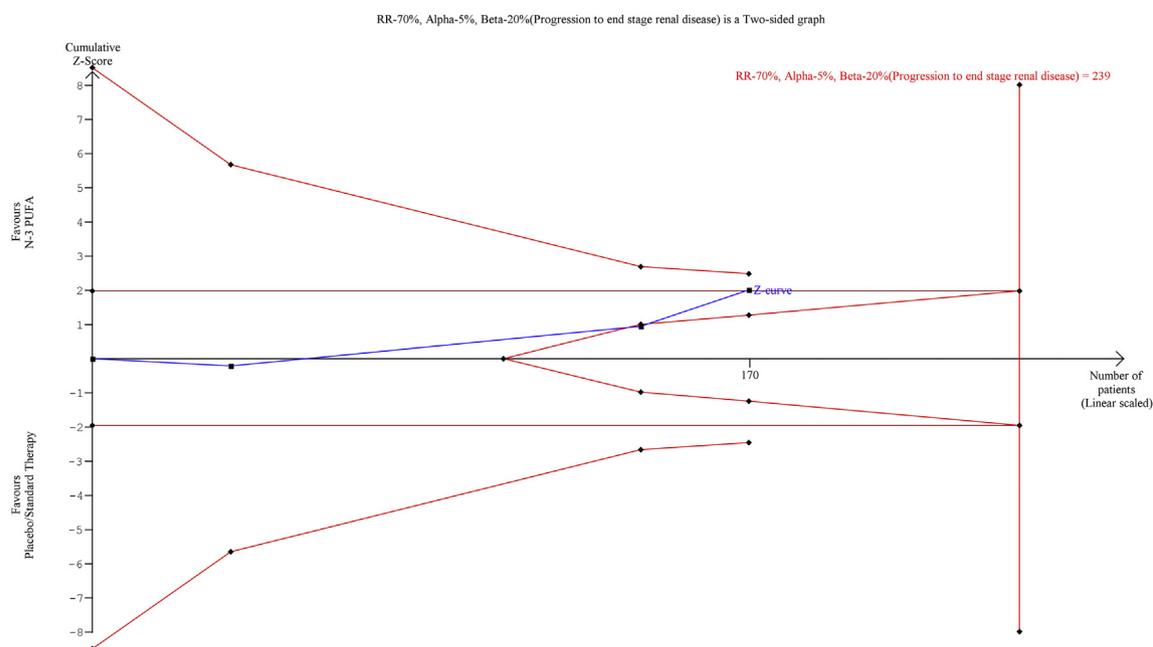


Fig. 2. Trial sequential plot for progression to end stage renal disease.

as the outcome. The pooled information size for cardiovascular mortality in the meta-analysis was however 1104. The cumulative z curve (Fig. 1) for cardiovascular mortality as the outcome crossed the conventional Alpha boundary after study five and the trial sequential boundary after study eight. Hence though the information size has not been reached there is adequate evidence for reduction in cardiovascular mortality by Omega 3 supplementation. However considering progression to end stage renal stage as the outcome, the adjusted information size of 239 was calculated for relative risk of 30%, two sided alpha error of 5%, beta error of 20%, incidence in the control arm of 29.33% and diversity 42%. The cumulative z curve (Fig. 2) cross the convention alpha error boundary after the third trial but fails to cross the trial sequential boundary, suggesting inadequate evidence yet for the conclusion of reduced risk of progression to end stage renal disease by omega 3 fatty acid supplementation. The trial sequence adjusted confidence interval for this outcome was calculated to be 0.07–1.33. Hence further trials are required for this conclusion.

Funding

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Conflicts of interest

None.

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