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LONG-CHAIN OMEGA-3 POLYUNSATURATED FATTY ACIDS AND PATIENT-LEVEL OUTCOMES IN CHRONIC KIDNEY DISEASE: META-ANALYSIS OF RANDOMISED TRIALS

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INTRODUCTION: N-3 PUFA has recognised vascular benefits in the general population, but knowledge of supplementation among patients with CKD is largely restricted to vascular access outcomes. We aimed to assess the benefits and harms of long-chain omega-3 polyunsaturated fatty acid (n-3 PUFA) therapy in patients with chronic kidney disease (CKD).

METHODS: MEDLINE, Embase, CENTRAL and reference lists were searched up to January date, 2018. We included randomised controlled trials evaluating n-3 PUFA supplementation compared with placebo or standard care on cardiovascular and all-cause mortality, progression to end stage kidney disease (ESKD), acute transplant rejection, and graft loss. Risks of bias and evidence certainty were assessed using Cochrane and GRADE processes, respectively.

RESULTS: Sixty RCTs (n=4129), median sample size of 41 participants (interquartile range [IQR]: 30 to 74) and median follow-up duration of 6 months (IQR: 3 to 12), were included. Studies were at unclear risk of bias for most domains.N-3 PUFA reduced cardiovascular death (relative risk [95% confidence interval], 0.43 [0.22 to 0.84], moderate evidence certainty) in dialysis patients, and progression to ESKD (0.30 [0.09 to 0.98], very low evidence certainty) in patients with moderate to advanced stage CKD. Effects on all-cause mortality (1.05 [0.83 to 1.33], low evidence certainty); acute transplant rejection (0.98 [0.80 to 1.21], very low evidence certainty) and graft loss (0.98 [0.54 to 1.81], very low certainty evidence) were uncertain. Bleeding risks (RR [95%CI], 1.40 [0.78, 2.49] and gastrointestinal side-effects (RR [95%CI], 1.14 [0.79 to1.67] were uncertain.

CONCLUSIONS: N-3 PUFA therapy may protect patients on dialysis against cardiovascular mortality. It appeared to prevent progression to ESKD in patients with moderate to advanced stage CKD but the evidence certainty was very limited.