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## **Efficacy And Safety Of Nicotinamide In The Management Of Hyperphosphatemia In Hemodialysis Patients: A Systematic Review Of Randomized Controlled Trials**

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**Objectives:** Hyperphosphatemia is a most common problem in dialysis patients. Phosphorus imbalance in dialysis patients increases the risk of developing the bone mineral disorder and cardiovascular mortality. Randomized Controlled Trials (RCTs) presented variable findings concerning the reduction of phosphorous level in nicotinamide user. So, this systematic review is aimed to explore the safety and efficacy of nicotinamide in hemodialysis patients.

**Methods:** This systematic review was conducted by adhering to the PRISMA guidelines. Study for inclusion was identified by running the suitable keywords in databases including PubMed, Embase, and Cochrane central from inception to January 2017. Cochrane risk of bias tool was used to judge the quality of included RCTs. The primary outcome was changed in serum phosphorus level while the change in other biochemical parameters including serum calcium, calcium-phosphorus product level, iPTH, platelets, lipid profile parameters, and the safety profile was considered under secondary outcomes. Review Manager (RevMan v5.3) was used for statistical analysis.

**Results:** A total of four articles were qualified for inclusion in this study. Study quality summary is presented in fig.1. Nicotinamide was started in the initial dose of 500mg per day with the gradual increase as per the requirement. All the included RCTs showed a statistically significant reduction in mean serum phosphorous, calcium-phosphorus product level in the treatment arm, while the insignificant change was noticed in the placebo group. Among several biochemical parameters analysed, only High-Density Lipoprotein (HDL) was found to be significantly increased from baseline to the endpoint of the study in the nicotinamide group, while the placebo group showed no significant difference. Thrombocytopenia was the most commonly reported adverse event in the treatment group followed by diarrhea.

**Conclusions:** Nicotinamide was found to be effective in reducing the phosphorous level and increasing in HDL cholesterol level in the hemodialysis patients. The safety profile was found to be satisfactory.

Fig.1 Quality assessment of the included study

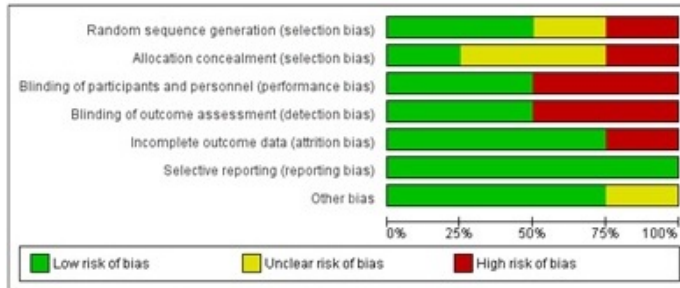


Fig.1(a) Risk of bias graph

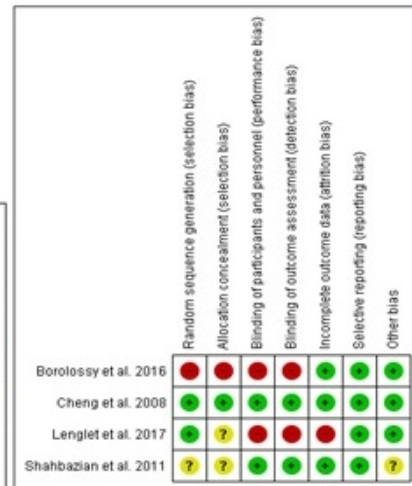


Fig.1(b) Risk of bias summary