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Effect of statin on cardiovascular complications in chronic kidney disease patients: A Network Meta-Analysis

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Objectives:

Increased cardiovascular mortality and morbidity risk in patients with advanced chronic kidney disease (CKD) is wellestablished, and even mild to moderate CKD is associated with an increased incidence of cardiovascular events. The use of statin has been shown to reduce cardiovascular events.Therefore,this analysis of statin usingstudy investigates the effects of lipid lowering agent in patients with CKD.

Methods:

We searched CENTRAL, MEDLINE, Embase, and Science Citation Index Expandedfrom 1970 until May 2017 to identify cardiac events, cardiac mortality, and all-cause mortality affect the CKD patients according to the statin dose.We performed direct and indirect network meta-analysis in Bayesian models and generated rankings of the different hypoglycemia agentsby GeMTC (generation mixed treatment comparison).

Results: With 20 studies (N =37,878), we performed the network meta-analysis for nine groups as follows; 1) placebo, 2) Lovastatin 20mg, 3) Atorvastatin 10mg, 4) Rosuvastatin 10mg, 5) Pravastatin 40mg, 6) Simvastatin 20mg + ezetimibe 10mg, 7) Simvastatin 40mg, 8) Atorvastatin 80mg, and9) Fluvastatin 40mg.Compared with placebo, cardiac event was significantly lowerin the group treated with pravastatin 40mg(odds ratio0.66 [95% CrI, 0.46 to0.91]). However, use of statinwas associated with a tendency to reduce all-cause mortality and cardiovascular mortality, but not statistically significant.

Conclusions:

In patients with CKD, pravastatin 40mgtreatment decreased cardiac event, but other types of statin did not reduce all-cause mortality and cardiovascular mortality compared with placebo.