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EFFECTS OF RENIN-ANGIOTENSIN SYSTEM INHIBITORS ON CORONARY IN-STENT RESTENOSIS: A META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS

Xu Yanping *The Second Affiliated Hospital Of Chongqing Medical University, Chongqing, China*

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Background RAS inhibitors have been proved to antiproliferative effect on neointimal hyperplasia so as to prevent in-stent restenosis (ISR) in animal models. However whether RAS inhibitors could prevent ISR in human trials is uncertain.

Objectives We reviewed published clinical trials about effects of renin-angiotensin system (RAS) inhibitors on restenosis after coronary stent implantation, for purpose of looking for evidence of clinical practice.

Methods A comprehensive search strategy was conducted to identify randomised controlled trials of coronary ISR prevention with ACE inhibitors (ACEIs) or angiotensin receptor blockers (ARBs). We searched PubMed, Embase, Cochrane Library, Ovid, Clinical Trials and CBMdisc. Eligible outcomes included ISR, late lumen loss, target lesion revascularisation and neointimal formation. We analysed datas by the intention-to-treat (ITT) principle with Review Manager 5.1.0. Random-effects model fixed-effects model were used respectively according to the heterogeneities among the study trials.

Results A total of 10 randomised controlled trials involving 1216 patients were analysed. RAS inhibitors were associated with no benefit on preventing ISR (RR 0.84, 95% CI (0.61 to 1.17); p=0.30), the same in both ACEIs subgroup (p=0.79) and ARBs subgroup (p=0.26). The reduction in ISR was more pronounced with RAS inhibitors than with control in post-procedural subgroup (p=0.006), which did not perform in preprocedural subgroup (p=0.93). There were no significant differences in preventing of ISR in both ACE D gene subgroup (p=0.61) and diabetes mellitus subgroup (p=0.18). The analyses results of reduction of target lesion revascularisation and neonitimal area after 6 months follow-up presented that ARBs could reduce the risk of event accidents.

Conclusions It provides little evidence of RAS inhibitors to reduce ISR. Due to the limitation of sample sises and study quality, large scale randomised double-blind placebo-controlled trials are further conducted to bring satisfactory answers.