META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS INVESTIGATING THE IMPACT OF COLCHICINE ON MAJOR ADVERSE CARDIOVASCULAR EVENTS IN ACUTE CORONARY SYNDROME

Introduction Colchicine has been shown to reduce inflammation and has a potential to stabilise atherosclerotic plaques. Clinical studies have suggested a role for colchicine in reducing adverse cardiovascular events in patients with coronary artery disease. The aim of the present meta-analysis was to investigate the effect of colchicine on outcomes following coronary intervention among patients presenting with acute coronary syndrome (ACS).

Methods We searched for randomised controlled trials (RCTs) comparing colchicine to placebo in patients with ACS undergoing coronary intervention using the initial MESH terms ‘colchicine’ and ‘cardiovascular system’. Eligible RCTs published up to November 2020 were included. We also searched presentations from the proceedings of relevant international scientific meetings. The primary endpoint was major adverse cardiovascular events (MACE). Study level odds ratios (ORs) and 95% confidence intervals (CI) of MACE were pooled using the Mantel-Haenszel method and random effects model. Forest plots were generated using Review Manager (RevMan) 5.4 software.

Results Our initial search identified 1,049 articles for potential inclusion. Of these studies, 4 RCTs were found to be eligible: COPS, COLCHICINE-PCI, COLCOT time-to-Initiation (TTI) 0-3 days and PODCAST-PCI. Overall a total of 2,709 patients were randomly allocated to treatment with either colchicine (n=1,367) or placebo (n=1,342). Patients received colchicine either prior to angiography or within 3 days post-procedure. Follow up duration ranged from 30 days to 3 years. Mean age of the whole analysed cohort was 60.3±10.5 years; 73% were male; 51% had a history of hypertension, 26% had diabetes mellitus, 38% were current smokers. There were 89 events in the colchicine group as opposed to 133 events in the placebo group. The risk of MACE was lower in patients treated with colchicine as compared with placebo (OR 0.63, 95% CI 0.48-0.84, p=0.001) (see figure 1). Heterogeneity across trials was not detectable (I²=0).

Conclusions The results of our meta-analysis suggest that among patients presenting with acute coronary syndrome undergoing coronary intervention, treatment with colchicine instead of placebo reduces the risk of MACE. Further investigations in larger cohorts are warranted to test this effect.