**Introduction**: The coexistence of atrial fibrillation and coronary artery disease is commonly found in clinical practice. So far, three RCT trials have evaluated the utilization of non-vitamin K antagonist oral anticoagulants (NOACs) in atrial fibrillation (AF) patients with acute coronary syndrome (ACS) or undergoing percutaneous coronary intervention (PCI). The aim of this meta-analysis is to compare the efficacy and safety of NOACs versus VKA in combination with antiplatelet therapy in AF patients with ACS or undergoing PCI, based on PIONEER AF-PCI, RE-DUAL PCI, and AUGUSTUS trials.

**Methods**: We included three phase 3 RCT trials comparing the efficacy and safety of NOACs versus VKA, the PIONEER AF-PCI trial, RE-DUAL PCI trial, and the AUGUSTUS trial. The risk ratios (RR) were extracted from each study. Pooled estimates with corresponding 95% confidence intervals were estimated by a fixed or random-effects model.

**Result**: Three studies involving a total of 9532 patients with AF were included in this meta-analysis. 3995 participants received antiplatelet therapy together with VKA and 5537 together with NOACs. The NOACs group was associated with a significantly lower incidence of all bleeding (RR 1.22, P<0.001), TIMI major (RR 1.60, P=0.004), ISTH major (RR 1.63, P<0.001) bleeding events and intracranial hemorrhage events (RR 3.33, P=0.002) but no difference with regard to ischemic vascular events and mortality rate.

**Conclusion**: NOACs with either a P2Y12 inhibitor or DAPT has significantly reduced the bleeding events, and similar efficacy were observed in terms of outcomes including stroke, myocardial infarction, in-stent thrombosis, all cause and cardiovascular mortality.