71 UP-TITRATION OF SECONDARY PREVENTION FOLLOWING ACUTE CORONARY SYNDROME (ACS)

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Introduction Optimum doses of secondary prevention cardiac medicines need to be achieved post-ACS to derive evidence-based benefits, including reductions in mortality, hospital readmission and improved symptom control. High intensity statin therapy can be started immediately at high-target dose, whilst ACE inhibitors (ACEi) and beta-blockers require up-titration to reach maximum tolerated doses. Despite a high percentage of patients being discharged on appropriate secondary prevention post-ACS, doses of ACEi and beta-blockers at the point of discharge are not at target dose due to haemodynamic effects and require up-titration post discharge. The aim of this study is to assess doses of ACEi and beta-blockers at the point of discharge and at various time points following discharge to assess rates of up-titration.

Method Patients discharged following ACS in September 2015, April 2016, July 2016 and September 2016 were identified using the Myocardial Ischemia National Audit Project (MINAP). Using electronic patient records, discharge doses of ACEi (or ARBs), beta blockers and statins were recorded. Patients were contacted in October 2016 to assess current doses of ACEi (or ARBs), beta blockers and statins corresponding to rates of up-titration at 1, 3, 6 and 12 months post-ACS. Full dose equivalents (FDE) were used to standardise variability of dosing between different ACEi (or ARBs), beta blockers and statins. FDE ranged from 0, those not on the class of medication, to 1, those on maximum doses. Patients without a true diagnosis of ACS or those deceased were excluded from the study.

Results 635 patients were identified from MINAP, of which 349 met the inclusion criteria for analysis. Baseline characteristics were similar between groups. Up-titration occurred in 53 patients (15%) taking beta blockers and 79 patients (23%) taking ACEi (or ARBs); however optimal doses of beta blockers and ACEi (or ARBs) were only achieved in 32 patients (9%) and 40 patients (11%) respectively. Average FDE of beta blockers and ACEi (or ARBs) was 0.38 and 0.37 respectively. 270 patients (77%) were taking optimal doses of statins, with an average FDE of 0.86. No differences were seen with regards to up-titration of secondary prevention at different time points.

Conclusions Results demonstrate an opportunity to titrate doses of beta blockers and ACEi (or ARBs) to optimal doses following ACS. NICE suggests up-titration to maximum doses within 4–6 weeks of discharge; however, whilst there is a positive trend in the number of patients on optimum doses with time, up-titration is minimal with patients achieving one third of target doses up to one year post-ACS. Data from this study shows a growing need to support patients in the community to optimise cardiac medications for secondary prevention after an ACS.

72 OFFSET OF TICAGRELOR PRIOR TO CORONARY ARTERY BYPASS GRAFT SURGERY (CABG) SURGERY

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Introduction Ticagrelor is a more potent platelet inhibitor than clopidogrel but also has a more rapid offset of inhibitory effect. The optimal timing of discontinuation of ticagrelor prior to coronary artery bypass graft (CABG) surgery is unknown. In the ONSET/OFFSET study of patients with stable coronary artery disease, ticagrelor's effects dissipated within 48–120 hours of discontinuation. However, there is evidence that the pharmacodynamics of antiplatelet therapy are significantly altered during an acute coronary syndrome (ACS) and the ONSET/OFFSET study results should not be extrapolated to ACS patients. Although the PLATO study suggested that it was safe to discontinue ticagrelor 48 hours prior to CABG, regulatory authorities recommended that ticagrelor should be discontinued 5 days prior to CABG. The PLATO study also showed that ticagrelor was associated with fewer deaths following pulmonary adverse events and sepsis compared to clopidogrel. It is unknown whether ticagrelor's additional property of inhibiting cellular adenosine uptake might underlie this observation. The aim of this study was to characterise the offset of ticagrelor's activity in inhibiting platelets and also in inhibiting cellular adenosine uptake in ACS patients.

Methods Patients admitted with ACS, treated with ticagrelor and referred for CABG were recruited. Venous blood was drawn from patients at the following 6 timepoints: 2 hours (h), 24 hour, 48 hour, 72 hour, 96 hour, and 120 hour after the last dose of ticagrelor prior to CABG. Whole-blood aggregometry was carried out using the Multiplate analyzer with adenosine diphosphate 6.45 μM as agonist and the final value of area under the curve (AUC) (units, U) was recorded. Results were analysed using linear mixed models. A local protocol was referred to, where an AUC of >50U supports safe progression to surgery, while values 50U indicates need for re-testing 24–48 hours later. Inhibition of adenosine uptake was determined by measuring the adenosine plasma concentration using liquid chromatography.

Results 13 patients were recruited, all of whom received ticagrelor prior to CABG surgery. At 96 hour post ticagrelor, the mean AUC was 82.8U, (95% confidence interval, 60.4, 105.2). Only at 96 hour was the lower limit of the confidence interval >50U. From the mixed model analysis, the comparison between 72 hour and 120 hour post ticagrelor showed a significant difference ($p=0.007$) while 96 hour and 120 hour showed no significant difference ($p=1.000$). Adenosine plasma concentration was measured in 7 patients who received ticagrelor and showed no significant difference in adenosine plasma concentration across all timepoints.

Conclusion ACS patients might be safe to undergo CABG surgery 4 days after the cessation of ticagrelor. Ticagrelor might have no measurable effect on adenosine transport in ACS patients.