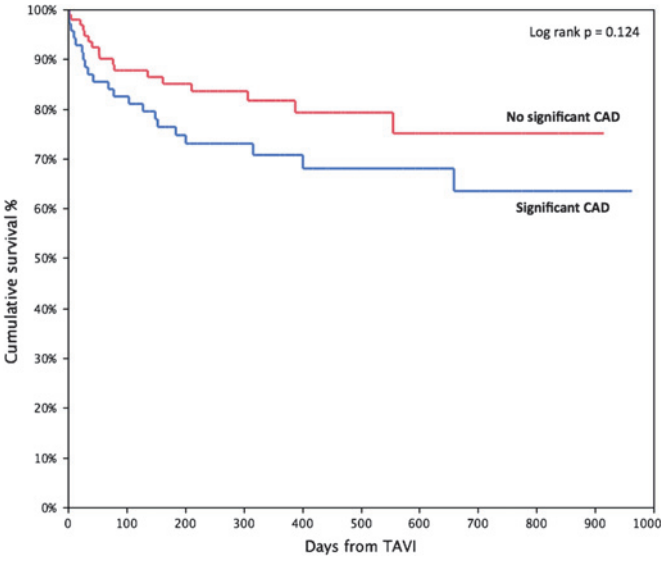

Abstract 26 Figure 1

study. As yet, the impact of PCI to significant CAD upon outcome after TAVI is not known and will be assessed in a prospective, randomised controlled trial currently underway.

27 PLATELET MONOCYTE AGGREGATES ARE DETERMINANTS OF MICROVASCULAR DYSFUNCTION DURING PERCUTANEOUS CORONARY INTERVENTION FOR STABLE ANGINA AND NON-ST SEGMENT ELEVATION MYOCARDIAL INFARCTION

doi:10.1136/heartjnl-2011-300198.27

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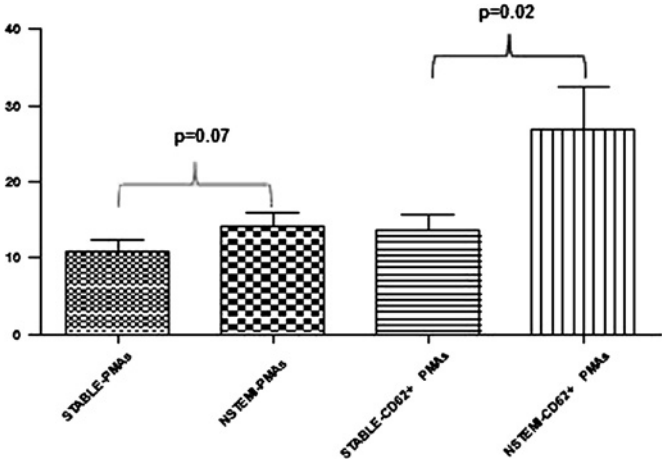
Background Microvascular dysfunction is associated with adverse outcome in patients with acute coronary syndrome (ACS). During ACS platelet and monocyte derived chemokines, in conjunction with adhesion molecule expression, promote the inflammatory process. Activated platelets express p-selectin which binds to the p-selectin glycoprotein ligand on the monocyte forming platelet monocyte aggregates (PMA). PMA expression is a sensitive marker of platelet activation and inflammation. Although platelet monocyte interaction is a normal physiological process, in the presence of platelet activation, activated (CD62+ PMA) may be directly involved in the pathophysiology of intracoronary inflammation and microvascular dysfunction in ACS.

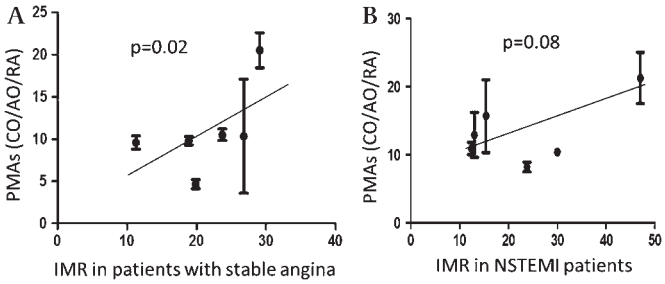
Aim To investigate the relationship between microvascular dysfunction and PMA expression in patients with stable angina and non-ST elevation myocardial infarction (NSTEMI).

Methods Six patients with stable angina undergoing elective PCI and six patients with NSTEMI undergoing non-elective PCI were recruited. Microvascular dysfunction was assessed by measuring the coronary wedge pressure (CwP) and the index of Microvascular resistance (IMR) using a single pressure-temperature sensor-tipped coronary wire from the simultaneous measurement of distal coronary pressure and thermodilution derived mean transit time (Tmn) of a bolus of saline injected at room temperature into the coronary artery during maximum hyperaemia. Blood samples were taken from the coronary artery (distal to the culprit lesion), aorta and the right atrium for PMA estimation. PMAs were assessed using fluorescent monoclonal antibodies and flow cytometry. Total PMAs were calculated and expressed as a percentage of the total monocyte count. Activated CD62+ PMAs were expressed as a percentage of total PMAs.

Results As expected CwP was higher in patients with NSTEMI (46.5 (SD) 18.8) compared with the stable angina patients (Mean (SD) 21.1 (9.3) p=0.01). IMR was also higher in patients with NSTEMI (Mean (SD) 27.6 (12.6)) compared with patients with stable angina (Mean (SD) 20.7 (5.4) p=0.2). Total PMAs were non-significantly higher in patients with NSTEMI (Mean (SD) 14 (4.8)) compared with stable angina (Mean (SD) 10.9 (4.3) p=0.07). CD62+ PMAs were significantly higher in patients with NSTEMI (Mean (SD) 26.9 (12.2)) compared with stable angina (Mean (SD) 13.7 (5.1) p=0.02) Abstract 27 figure 1. CwP correlated positively with total PMA (p=0.01) in NSTEMI but not in stable angina patients. However, IMR correlated positively with total PMAs in both stable angina (p=0.02) and NSTEMI (p=0.08) Abstract 27 figure 2.



Abstract 27 Figure 1



Abstract 27 Figure 2

Conclusions PMAs are elevated in stable coronary disease and ACS with elevated activated CD62+ PMA a hallmark of ACS. PMAs correlate with measured microvascular dysfunction during PCI in stable angina and NSTEMI. This study supports the hypothesis that PMA formation may be important determinants of platelet activation, inflammation and microvascular dysfunction in coronary disease.

28 LOW FRAME RATE SCREENING DURING PERCUTANEOUS CORONARY ANGIOPLASTY SIGNIFICANTLY REDUCES RADIATION EXPOSURE, GIVES GOOD IMAGE QUALITY WITHOUT AFFECTING PATIENT OUTCOME

doi:10.1136/heartjnl-2011-300198.28

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Introduction Minimisation of radiation exposure during cardiac procedures is required by statute (IRMER 2000). During coronary angioplasty 47% of radiation dose is related to screening at standard

Abstract 28 Table 1

	Screening DAP (mGycm^2)	Total DAP (mGycm^2)	Fluoro time (seconds)	Number of acquisitions
Standard (15 fps)	28564.5	60746.9	770	26.7
Low (7.5 fps)	19248.5	50953.4	800	26.8
Mean DAP reduction	−33%	−16%	–	–
Significance	p<0.01	n/s	n/s	n/s

frame rate (15 frames per second). Digital fluoroscopic technology has improved imaging making the use of lower frame rates feasible. This study assessed whether low frame rate screening (7.5 frames per second) reduced radiation without affecting patient outcomes.

Method We prospectively collected data from consecutive coronary angioplasty procedures performed at reduced screening frame rate (7.5 frames per second). We included elective, urgent and emergency procedures. Audit data from procedures performed at standard frame rate with the same inclusion criteria were used as a control group. Phillips Allura flat plate XPER FD10 catheterisation equipment was used. The frame rate could be increased at the operator's request, and any safety concerns were reported immediately.

Data collection

Patient data:

- Age
- Weight (Kg)
- Height (cm)

Radiation data:

- Screening DAP (mGycm^2)
- Total DAP (mGycm^2)
- Total Fluoroscopy time (mm:ss)
- Number of acquisition runs

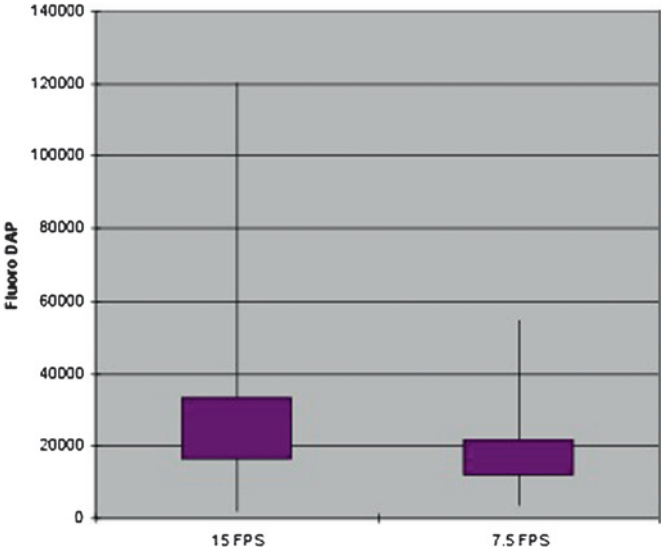
Operator outcome:

- Need to increase screening frame rate

Patient outcome:

- 30 day incidence of major adverse cardiovascular event (MACE): death, non-fatal myocardial infarction or need for urgent revascularisation.

Results 55 consecutive studies were examined at low-frame rate and compared with the audit control group (n=105). Mean age was 67 in the low screening rate group and 65 in the control group. Weight was similar in both groups (83 kg vs 82 kg). The screening



Abstract 28 Figure 1

times and number of acquisition runs were similar in each group. In every case image quality was acceptable, with no requirement for increased screening frame rate. No safety concerns were reported. 30-day incidence of major adverse cardiovascular events (MACE) was similar in both groups. In the screening group there was 1 MACE event at 30 days (2%), with 2 MACE events (2%) in the control group. Screening and Total DAPs (mean mGycm^2) were 33% and 16% lower respectively in the low frame rate group. Statistical comparison was made with the Man-Whitney U-test. This showed a significant reduction in the Screening DAP ($p \leq 0.01$) with low frame rate screening. See Abstract 28 table 1 and graph.

Conclusions Low frame rate screening is a practical way of reducing radiation exposure in line with the ALARA "As Low As Reasonably Acheivable" principle. Having shown that low frame rate screening for coronary angiography gives good imaging quality and is safe, we now demonstrate that low frame rate screening coronary angioplasty is also safe. Radiation exposure from screening is significantly reduced by 33% and total exposure is reduced by 16%. Low frame rate screening should be standard practice where modern facilities allow. We suggest that centres currently using 15 frames per second screening should undertake a similar assessment in order to minimise radiation.

29 BIVALIRUDIN IN PATIENTS UNDERGOING PRIMARY PERCUTANEOUS CORONARY INTERVENTION FOR ACUTE ST-ELEVATION MYOCARDIAL INFARCTION: OUTCOMES IN A LARGE REAL-WORLD UK POPULATION

doi:10.1136/heartjnl-2011-300198.29

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Background The HORIZONS-AMI trial demonstrated a significantly lower early and late mortality in patients undergoing primary PCI (PPCI) treated with bivalirudin compared to a Glycoprotein IIb/IIIa inhibitor (GPI) + heparin. However, concerns remain regarding the increased incidence of acute stent thrombosis (ST) with bivalirudin, the apparently worse outcomes in the absence of additional pre-procedural heparin, and the translation of trial results into a real-world population. We evaluated the outcomes of patients undergoing PPCI with bivalirudin in a large all-comers UK setting.

Methods All patients who underwent PPCI in Leeds General Infirmary from 1 January 2009 to 31 December 2009 were prospectively entered into a dedicated registry. Demographic, procedural, and 30-day outcome data were obtained by abstraction from the ONS mortality database and BCIS PCI database, review of hospital notes, and telephone follow-up. Bivalirudin was administered as a bolus, high-dose intra-procedural infusion, and low-dose infusion for 4 h post-PCI. Additional heparin was not routinely given, but was favoured by some operators. Bail-out GPI was administered according to physician judgement. Primary endpoints were death, MACE (death, re-infarction, stroke, unplanned target vessel revascularisation (TVR)), and stent thrombosis (ST) (ARC definition definite/probable) at 30-days follow-up.

Results 968 patients (age 63.5±13 years, 71.9% male, 13.2% diabetics) underwent PPCI. Bivalirudin was given in 882 patients (91.1%), and GPI + heparin in 85 (8.8%). Of bivalirudin-treated patients 100 (11.3%) also received heparin (29 pre-PCI and 80 during) while bail-out GPI was used in 91 (10.3%). Thirty-day outcomes are shown in Abstract 29 table 1. All-cause mortality was 5.2% in the bivalirudin treated patients. Acute ST occurred in 1.0%, a median of 2 h post-PCI, and within 6 h in 90%. Mortality in