patients who suffered acute ST was 20%, compared to 80% following subacute ST. There was no difference in outcomes between bivalirudin treated patients who also received heparin compared to those who didn't (death 7.0% vs 5.0%, p value: 0.80; MACE 14.0% vs 10.8%, p value: 0.32; acute ST 0% vs 1.2%, p: 0.61).

Abstract 29 Table 1 Outcomes at 30 days

| | All patients | Bivalirudin | GPI + heparin | p value |
|---|---|---|---|---|
| No. of patients | 968 | 882 | 85 | |
| Death | 52 (5.4%) | 46 (5.2%) | 6 (7.1%) | 0.450 |
| Cardiac death | 45 (4.7%) | 39 (4.4%) | 6 (7.1%) | 0.277 |
| Re-infarction | 16 (1.7%) | 14 (1.6%) | 2 (2.4%) | 0.645 |
| Unplanned TVR | 12 (1.2%) | 10 (1.1%) | 2 (2.4%) | 0.286 |
| Stroke | 56 (5.8%) | 54 (6.1%) | 2 (2.4%) | 0.222 |
| Death, re-infarction, stroke or TVR | 110 (11.4%) | 100 (11.3%) | 10 (11.8%) | 0.906 |
| Acute stent thrombosis | 10 (1.0%) | 9 (1.0%) | 1 (1.2%) | 0.604 |
| Subacute stent thrombosis | 15 (1.6%) | 13 (1.5%) | 2 (2.4%) | 0.386 |

**Conclusion** Routine use of bivalirudin in a large UK all-comers primary PCI population was associated with excellent 30-day outcomes, including all-cause and cardiac mortality. Acute stent thrombosis was infrequent, despite the absence of routine additional heparin.

## 30 COMPARISON OF BIVALIRUDIN VS ABCIXIMAB VS "UNFRACTIONATED HEPARIN ONLY" FOR PRIMARY PERCUTANEOUS CORONARY INTERVENTION IN A HIGH-VOLUME CENTRE

doi:10.1136/heartjnl-2011-300198.30

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**Introduction** Primary percutaneous coronary intervention (PPCI) has been established as a standard therapy for ST elevation myocardial infarction (STEMI). In addition to thrombectomy and unfractionated heparin (UFH), thrombus burden in STEMI may require use of more potent antithrombotic agents. Bivalirudin is shown to be superior to abciximab in reducing the net adverse clinical events and major bleeding in STEMI in the HORIZONS-AMI trial (Stone *et al NEJM*, 2008). We aimed to carry out a "real world" comparison of different anti-thrombotic regimes in patients undergoing PPCI in our unit.

**Methods** Our PPCI service started in September 2009 and we included all patients undergoing PPCI between September 2009 and September 2010. Prospectively entered data were obtained from our dedicated cardiac service database system (Philips CVIS). Mortality data were obtained from the summary care record (SCR) database. We used Fisher's exact test to compare clinical outcomes between the groups.

**Results** Of the 998 patients admitted with suspected STEMI to our unit during the study period, 776 (77.8%) underwent PPCI. After excluding patients who had both bivalirudin and abciximab during their procedure (n=15), we divided the others (n=761) into 3 groups according to the anti-thrombotic regime used (Grp 1- Abciximab +UFH, Grp 2- Bivairudin+UFH and Grp 3- "UFH only"). Patient demographics and procedural information are given in Abstract 30 table 1. Continuous data are presented as mean± SD. Clinical outcomes are shown in Abstract 30 table 2. In-hospital and 30-day mortality did not differ between patients who had bivalirudin vs abciximab (5.6% vs 3.8%, p=0.35 and 6.8% vs 5.2% p=0.53 respectively). Both acute and 30 day stent thrombosis rates were also similar in the two groups (0.6% vs none, p=0.3, 0.6% vs 0.9%, p=1.0 respectively). Even though the bleeding risk was higher in the abciximab group when compared with bivalirudin, this was not significant (5.8% vs 3.1%, p=0.27). There was also no difference in the outcomes between the bivalirudin and "UFH only" groups for mortality, stent thromboses (acute and 30-day) and major bleeding. The abciximab group had significantly higher major bleeding rates than the "UFH only" group (5.8% vs 2.4%, p=0.04); all other outcomes were similar.

Abstract 30 Table 1

| | Abciximab + UFH (n=346) | Bivalirudin + UFH (n=162) | UFH only (n=253) |
|---|---|---|---|
| Age in yrs (range) | 64±14.1 (25–99) | 65±13.0 (31–94) | 67±13.2 (30–96) |
| Male (%) | 77.7 | 72.2 | 66.8 |
| Diabetes (%) | 12.4 | 6.2 | 11.5 |
| Pre-procedure cardiogenic shock (%) | 7.8 | 6.2 | 4.7 |
| Drug eluting stent (at least one) (%) | 56.1 | 56.8 | 53.8 |
| No of stents | 1.4±0.9 | 1.4±0.8 | 1.4±0.9 |
| Single vessel PCI (%) | 91.3 | 87 | 89.3 |
| Three vessel PCI (%) | 1.4 | 1.9 | 2 |
| Radial procedure (%) | 28 | 26.5 | 31.2 |

Abstract 30 Table 2

| % | Abciximab + UFH (n=346) | Bivalirudin + UFH (n=162) | UFH only (n=253) |
|---|---|---|---|
| In-hospital Mortality (including cardiogenic shock) | 3.8 | 5.6 | 5.1 |
| 30 day Mortality (including cardiogenic shock) | 5.2 | 6.8 | 7.1 |
| 30 day Mortality (excluding cardiogenic shock) | 3.5 | 4.9 | 5.5 |
| Stent Thrombosis (within 30 days) | 0.9 | 0.6 | 1.2 |
| Acute stent Thrombosis (24 h) ≤ | 0 | 0.6 | 0.4 |
| Major bleed requiring blood transfusion (non CABG related) | 5.8 | 3.1 | 2.4 |
| Access related bleed requiring transfusion (includes IABP related) | 3.8 | 1.9 | 1.2 |

**Conclusion** These "real-world" data do not show any significant difference in the clinical outcome for patients who had bivalirudin or abciximab. There was no advantage seen with the more expensive agent (abciximab) in keeping with previous trial data. Therefore bivalirudin should be considered as a non-inferior alternative to abciximab. This would have considerable economic benefits in the present situation. The "UFH only" group had similar outcomes to both bivalirudin and abciximab, which suggests that this may be a viable alternative in its own right. However, our study is clearly limited by not being randomised and those patients treated with UFH alone may have been a lower risk group.

## 31 ASSESSMENT OF LEFT VENTRICULAR FUNCTION WITH CARDIAC MRI AFTER PERCUTANEOUS CORONARY INTERVENTION FOR CHRONIC TOTAL OCCLUSION

doi:10.1136/heartjnl-2011-300198.31

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**Objective** To assess the role of CMR in the treatment of true chronic total occlusions (CTO) with percutaneous coronary intervention (PCI) and drug eluting stent implantation.

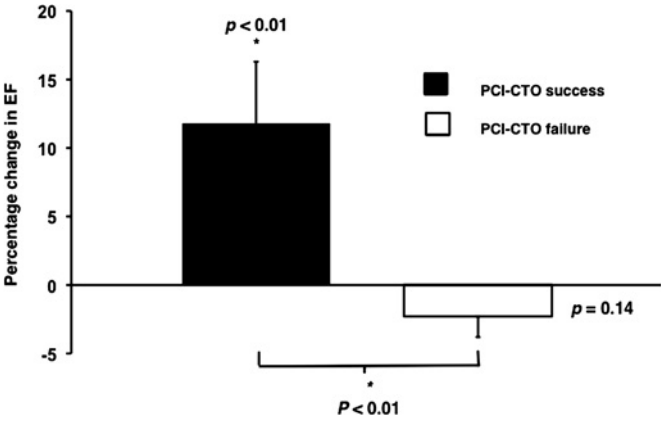
**Introduction** Successful PCI for CTO may confer an improved prognosis and a reduction in major adverse cardiac events (MACE). However most trials have included occlusions of short duration (less than 4 weeks). In this study we assessed the impact of PCI on LV function in patients with true CTOs (TIMI flow grade 0 and greater than 12 weeks duration) using serial CMR imaging as well as the predictive value of late gadolinium enhancement when performed prior to revascularisation.

**Methods** Thirty patients referred for PCI to a single vessel CTO underwent CMR examination prior to and 6 months after PCI. Technical success was defined as recanalisation of the occluded vessel and DES implantation with a final residual diameter stenosis <30%. LV function and infarct size were assessed using a 1.5T GE MRI system. Segmental wall thickening (SWT) was measured within the perfusion territory of the CTO using the 16-segment model and segments were dysfunctional if the SWT was ≤45%. The transmural extent of infarction (TEI) was calculated by dividing the hyperenhanced area by the total area×100; a score of ≤25% were considered viable.

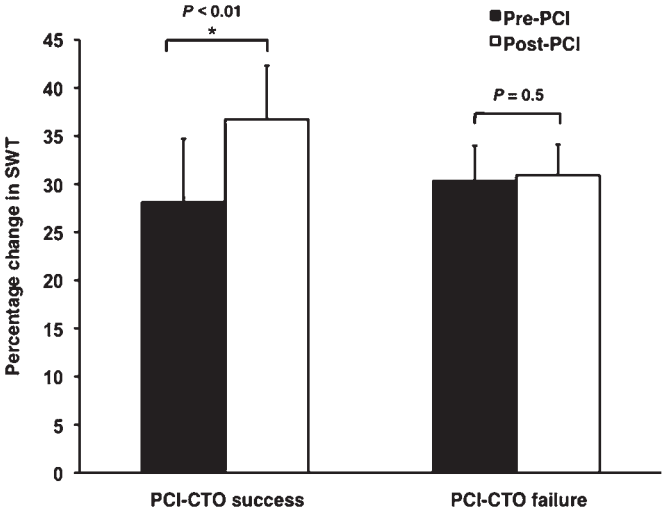
**Results** Technical success was achieved in 19 of the 30 patients (63%). CTO duration was greater in patients with failed revascularisation but other baseline demographics were well matched between groups (Abstract 31 table 1). PCI-CTO success resulted in a significant increase in LVEF when compared to both baseline (50±13 vs 54±11; p<0.01) and with PCI-CTO failure (11.8±19.8 vs -2.3±5.1, p<0.01, Abstract 31 figure 1). In dysfunctional but viable segments only PCI success conferred a significant improvement in SWT compared to baseline (26±6 vs 40±10; p<0.001, Abstract 31 figure 2). There were no episodes of MACE in either group at 21 months follow-up.

Abstract 31 Table 1

| | Total (n=30) | CTO-PCI Success (n=19) | CTO-PCI Failure (n=11) | p value |
|---|---|---|---|---|
| Age/ years | 62.2±10.2 | 62.4±9.8 | 61.8±11.4 | 0.89 |
| Male, n (%) | 25 (83) | 14 (74) | 11 (100) | 0.13 |
| CCS Anginal Class | 2.13±0.68 | 2.21±0.63 | 2.0±0.77 | 0.42 |
| LVEF/ % | 53.0±11.6 | 50.3±12.6 | 57.6±8.1 | 0.09 |
| CTO duration, months | 36.9±70.8 | 12.6±26.4 | 78.8±101.1 | 0.01 |
| Vessel, n (%) | | | | |
| RCA | 16 (53) | 9 (47) | 7 (64) | 0.35 |
| LAD | 11 (37) | 7 (37) | 4 (36) | |
| LCx | 3 (10) | 3 (16) | 0 | |
| Prior MI, n (%) | 17 (59) | 11 (58) | 6 (56) | 0.61 |
| Diabetes Mellitus, n (%) | 7 (23) | 5 (26) | 2 (18) | 0.61 |
| Hypertension | 23 (77) | 14 (74) | 9 (82) | 0.61 |




Abstract 31 Figure 1




Abstract 31 Figure 2

**Conclusion** PCI-CTO success of true CTOs can improve global LV function. The TEI, assessed with CMR, can be used to help predict improvements in regional wall function. PCI-CTO failure was not associated with increased MACE at medium-term follow-up.

## 32 DOES COMPLETE REVASCULARISATION CONFERS A LONG TERM SURVIVAL BENEFIT IN PATIENTS WITH CHRONICALLY OCCLUDED CORONARY VESSELS?

doi:10.1136/heartjnl-2011-300198.32

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**Introduction** Chronic total occlusion (CTO) of coronary vessels is a relatively common finding on diagnostic angiography. There has been increasing interest in this clinically important area with development of technologies resulting in improved recanalisation rates. However, long term survival data in this cohort is lacking. In this study we looked at survival of patients in whom complete, successful revascularisation was achieved.

**Methods** We identified consecutive patients, found to have CTO of at least one vessel of more than 1-month duration, on angiography performed between January 1999 and August 2000 in a single tertiary centre. We used a dedicated database to record data on variables and used central National Health Service database to obtain survival data. Results were analysed using SPSS statistics version 17.

**Results** We included 331 patients in the analysis. Mean age was 56.8 ±19.8 years, 76.1% were male and 21.8% (n=71) were diabetic. Mean duration of CTO was 29.5±25.9 months and was only reliably estimated in 82.5% of cases. Median follow-up duration was 10.09±3.3 years. Complete revascularisation was successfully achieved in 53.5% (n=177) patients, while 46.5% (n=154) were either treated medically from the outset or had failed or incomplete revascularisation. Both groups were age matched. Overall 10-year survival was 66.5%; those with complete revascularisation had significantly improved survival over those with incomplete revascularisation or medical therapy (75.1% vs 56.5%, p<0.001).

**Conclusion** Complete revascularisation confers a significant long term survival in patients with CTO and underscores the importance of improved recanalisation rates when performing angioplasty in this patient group. Overall survival was relatively poor and emphasises the importance of optimal medical therapy in this cohort.