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LONG-TERM OUTCOME AMONG PATIENTS WITH EARLY, LATE, AND VERY LATE STENT THROMBOSIS FOLLOWING PREVIOUS PCI FOR ST-ELEVATION MYOCARDIAL INFARCTION

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Background Stent thrombosis (ST) often presents as ST Elevation Myocardial infarction (STEMI). ST has not been adequately characterised with regard to differences in outcome related to the timing of ST—early (EST), late (LST) and very late (VLST). The aim of this study was to characterise ST presenting as STEMI comparing the timing of ST in terms of baseline characteristics, clinical presentation and long-term outcome.

Table 1 Baseline characteristics

Variable	EST (n=83)	LST (n=69)	VLST (n=99)	p Value	Native (n=3407)
Age (years)	64.39±12.6	62.42 ±14.2	59.44±20.3	0.306	63.09±15.2
Female	22 (26.5%)	15 (21.7%)	38 (38.4%)	0.06	807 (23.7%)
Diabetes	25 (30.1%)	19 (27.5%)	22 (22.2%)	0.003	569 (16.7%)
Previous MI	55 (66.3%)	44 (63.8%)	56 (56.6%)	0.001	368 (10.8%)
Renal failure	23 (27.7%)	18 (26.1%)	12 (12.1%)	0.04	382 (11.2%)
Previous CABG	9 (10.8%)	5 (7.2%)	3 (3.0%)	0.05	86 (2.6%)
Cardiogenic shock	5 (6.0%)	9 (13.0%)	2 (2.0%)	0.05	204 (6.0%)
Multivessel disease	41 (49.4%)	30 (43.5%)	40 (40.4%)	0.06	1523 (44.7%)
Successful result	77 (92.8%)	65 (94.2%)	96 (97.0%)	0.723	3274 (96.1%)

Methods This was an observational cohort study of 3658 patients who underwent primary percutaneous coronary interventions (PPCI) from 2003 to 2012 with follow-up for a median of 3.4 years (IQR range 1.2–4.6 years). The primary end-point was the first major adverse cardiac event (MACE) defined as death, non-fatal myocardial infarction, stroke or target vessel revascularization.

Results ST overall accounted for 6.9% (251/3658) of all STEMIs. 33.1% (n=83) were early (where 3.2% acute ST (<24 h) and 29.9% sub-acute ST (between 1 day and 30 days)), 27.5% (n=69) were late ST (between 30 days and 1 year) and 39.4% (n=99) were very late ST (>1 year). The VLST group had different clinical characteristics compared to the EST and LST group. The VLST group had lower rates of diabetes (VLST 22.2% vs EST 30.1% vs LST 27.5%, p=0.003), previous MI (VLST 56.6% vs EST 66.3% vs LST 63.8%, p=0.001), renal failure (VLST 12.1% vs EST 27.7% vs LST 26.1%, p=0.04), previous CABG (VLST 3.0% vs EST 10.8% vs LST 7.2%, p=0.05) and cardiogenic shock (VLST 2.0% vs EST 6.0% vs LST 13.0%, p=0.05) than those with either early or late stent thrombosis. The VLST group had clinical characteristics that were similar to patients presenting with native coronary thrombosis (table 1).

The VLST group had a significantly lower cumulative incidence of MACE during follow-up (27.3% 95% CI 12.2 to 38.6) compared to the EST (66.9% 95% CI 54.7 to 76.6; p=0.016) and LST (58.5% 95% CI 43.1 to 73.3; p=0.016) group (figure 1). There was no difference in outcome between the VLST and native coronary thrombosis group (27.3% 95% CI 12.2 to 38.6 vs 25.6% 95% CI 20.5 to 30.5, p=0.245). Early (HR, 2.50; 95% CI 1.73 to 3.63; p<0.0001) and late (HR, 1.66; 95% CI 1.11 to 2.48; p=0.013) stent thrombosis were independent predictor of major adverse cardiac events after multivariate adjustment however very late stent thrombosis was not (HR, 0.74; 95% CI 0.40 to 1.36; p=0.326).

Conclusions Differences in baseline demographic features, and long-term outcomes between the different timings of ST suggest that the predominant underlying mechanisms might be different.

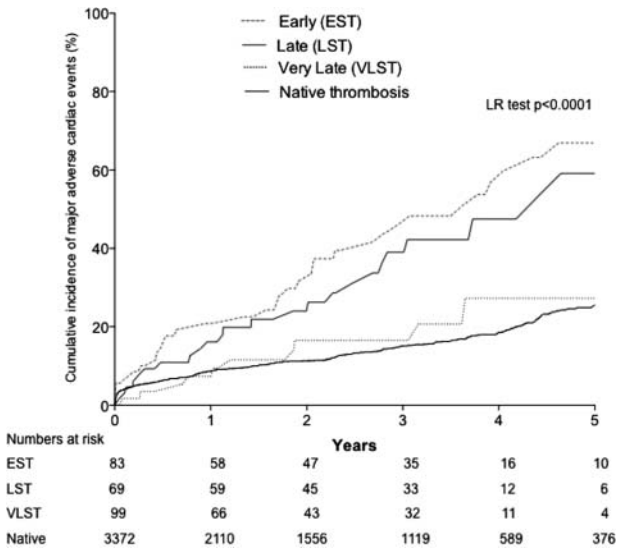

Figure 1 Kaplan-Meier curves showing cumulative probability of major adverse cardiac events after previous PCI comparing the different timings of ST.