**Appendix Table D9. Clinical outcome information – stent thrombosis**

| **Author,year****UID****Country****Study name** | **Treatment** | **Genetic Test Used [index test]** | **Clinical Outcome** | **Outcome Definition** | **Timing of measurement** | **Genotype groups** | **No. with outcome status within phenotype group** | **Comparative metric** | **95% CI** | **P (between which groups?)****[statistical test]** | **Statistical Adjustment****[If YES, for what factors?]** | **Procedures for multiple comparisons** | **Comments** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Collet, 200919108880FranceAFIJI (Appraisal of risk Factors in young Ischemic patients Justifying aggressive Intervention) registry | Clopidogrel (75 mg maintenance dose for at least 1 mo) | CYP2C19 \*2 | Definite stent thrombosis | Based on definitions from the Academic Research Consortium. Definite = total occlusion originating or within 5 mm of the stent; or visible thrombus within the stent or within 5 mm of the stent in the presence of an acute ischemic clinical syndrome within 48 h | Mean FU = 2.8 yr | Carriers (\*2/\*2 or \*2/\*1)N = 61(patients with stent implantation) | N = 86.79 events per 100 person-years | HR = 6.02Adjusted HR = 6.04 | 1.81, 20.041.75, 20.80 | 0.00090.004 | UnadjustedAdjusted [baseline BMI, smoking status, diabetes status, stent implantation, initial STE MI, use of PPI] | NO | NO |
|  |  |  |  |  |  | Non-carriers (\*1/\*1)N = 162(patients with stent implantation) | N = 41.14 events per 100 person-years |  |  |  |  |  |  |
| Giusti, 2009{Giusti, 2009 134 /id}19268736ItalyRECLOSE study(Low Responsiveness to Clopidogrel and Sirolimus- or Paclitaxel-Eluting Stent Thrombosis) | Aspirin (loading dose = 325 mg; maintenance dose = 325 mg per day) and clopidogrel (loading dose = 600 mg; 75 mg maintenance). | CYP2C19\*2 | Stent thrombosis | Definite or probable stent thrombosis. Definite = ACS + angiographic or pathologic confirmation of thrombosis; probable = unexplained death or MI in the territory supplied by a stented vessel without angiographic confirmation | Maximum FU of 6 mo | \*2/\*2N = 26 | 2 (7.7%) | NR | NR | 0.046 across groups (chi square test) | NO | NO | Primary outcome |
|  |  |  |  |  |  | \*2/\*1N = 221 | 11 (5.0%) |  |  |  |  |  |  |
|  |  |  |  |  |  | \*1/\*1N = 525 | 11 (2.1%) |  |  |  |  |  |  |
| Giusti, 2009{Giusti, 2009 134 /id}19268736ItalyRECLOSE study(Low Responsiveness to Clopidogrel and Sirolimus- or Paclitaxel-Eluting Stent Thrombosis) | Aspirin (loading dose = 325 mg; maintenance dose = 325 mg per day) and clopidogrel (loading dose = 600 mg; 75 mg maintenance). | CYP2C19\*2 + ADP residual platelet reactivity (see also KQ2b extraction form) | Stent thrombosis | Definite or probable stent thrombosis. Definite = ACS + angiographic or pathologic confirmation of thrombosis; probable = unexplained death or MI in the territory supplied by a stented vessel without angiographic confirmation | Maximum FU of 6 mo | \*2/\*2 + RPRN = 40 | 6 (15%) | NROR=5.79 | NR(1.04, 39.01) | <0.0001 across groups (chi square test)0.033 (logistic regression) | NOAdjusted (“for traditional cardiovascular risk factors and clinical and procedural risk factors for stent thrombosis”) | NO | Primary outcome |
|  |  |  |  |  |  | \*1/\*1 or low RPRN = 732 | 18 (2.5%) |  |  |  |  |  |  |
| Giusti, 2009{Giusti, 2009 134 /id}19268736ItalyRECLOSE study(Low Responsiveness to Clopidogrel and Sirolimus- or Paclitaxel-Eluting Stent Thrombosis) | Aspirin (loading dose = 325 mg; maintenance dose = 325 mg per day) and clopidogrel (loading dose = 600 mg; 75 mg maintenance). | CYP2C19\*2 | Stent thrombosis | Definite or probable stent thrombosis. Definite = ACS + angiographic or pathologic confirmation of thrombosis; probable = unexplained death or MI in the territory supplied by a stented vessel without angiographic confirmation | Maximum FU of 6 mo | \*2/\*2 or \*2/\*1N = 247 | 13 (5.3%) | NROR=2.59OR=3.43 | NR(1.15, 5.88)(1.01, 12.78) | 0.025 (chi square test)0.022 (logistic regression)0.047 (logistic regression) | NONO (univariate)YES (ADP-RPR, traditional cardiovascular risk factors, clinical and procedural risk factors for ST) | NO | Primary outcome |
|  |  |  |  |  |  | \*1/\*1N = 525 | 11 (2.1%) |  |  |  |  |  |  |
| Giusti, 2009{Giusti, 2009 134 /id}19268736ItalyRECLOSE study(Low Responsiveness to Clopidogrel and Sirolimus- or Paclitaxel-Eluting Stent Thrombosis) | Aspirin (loading dose = 325 mg; maintenance dose = 325 mg per day) and clopidogrel (loading dose = 600 mg; 75 mg maintenance). | CYP2C19\*2 | Stent thrombosis | Definite or probable stent thrombosis. Definite = ACS + angiographic or pathologic confirmation of thrombosis; probable = unexplained death or MI in the territory supplied by a stented vessel without angiographic confirmation | Maximum FU of 6 mo | \*2/\*2 or \*2/\*1N = 247 | 13 (crude proportion 5.3%) | NR | NR | <0.01 (log rank) | NO | NO | Primary outcome |
|  |  |  |  |  |  | \*1/\*1N = 525 | 11 (crude proportion 2.1%) |  |  |  |  |  |  |
| Giusti, 2009{Giusti, 2009 134 /id}19268736ItalyRECLOSE study(Low Responsiveness to Clopidogrel and Sirolimus- or Paclitaxel-Eluting Stent Thrombosis) | Aspirin (loading dose = 325 mg; maintenance dose = 325 mg per day) and clopidogrel (loading dose = 600 mg; 75 mg maintenance). | CYP2C19\*2 | Definite stent thrombosis | ACS + angiographic or pathologic confirmation of thrombosis | Maximum FU of 6 mo | \*2/\*2 or \*2/\*1N = 247 | 6 (2.4%) | NR | NR | 0.100 (chi square test) | NO | NO | Component of composite secondary outcome |
|  |  |  |  |  |  | \*1/\*1N = 525 | 5 (1%) |  |  |  |  |  |  |
| Giusti, 2009{Giusti, 2009 134 /id}19268736ItalyRECLOSE study(Low Responsiveness to Clopidogrel and Sirolimus- or Paclitaxel-Eluting Stent Thrombosis) | Aspirin (loading dose = 325 mg; maintenance dose = 325 mg per day) and clopidogrel (loading dose = 600 mg; 75 mg maintenance). | CYP2C19\*2 | Probable stent thrombosis | Unexplained death or MI in the territory supplied by a stented vessel without angiographic confirmation | Maximum FU of 6 mo | \*2/\*2 or \*2/\*1N = 247 | 7 (2.8%) | NR | NR | 0.083 (chi square test) | NO | NO | Component of composite secondary outcome |
|  |  |  |  |  |  | \*1/\*1N = 525 | 6 (1%) |  |  |  |  |  |  |
| Mega{Mega, 2009 141 /id}200919106084TRITON-TIMI 38 | Clopidogrel 300 mg loading dose, 75 mg maintenance | CYP2C19 (multiple alleles) | Stent thrombosis | Definite or probable, as defined by the Academic Research Consortium | Up to 15 mo (maximum duration of treatment on trial)  | IM or PM (1/\*2A, \*1A/\*3, \*1A/\*4, \*1A/\*8, \*2A/\*2A, \*2A/\*3, \*2A/\*4, \*2A/\*5A, \*2A/\*8)N = 375(patients who had stent placement) | N = NRRate = 2.6% (Kaplan-Meier) | HR = 3.09 | 1.19, 8.00 | 0.02 [Kaplan-Meier] | ACS subtype (STE or NSTE was used as a stratification factor) | NO | Secondary outcome |
|  |  |  |  |  |  | EM (\*1A/\*1A)N = 1014(patients who had stent placement) | N = NRRate = 0.8% (Kaplan-Meier rate) |  |  |  |  |  |  |
|  |  | CYP2C19\*2 | Stent thrombosis | Definite or probable, as defined by the Academic Research Consortium | Up to 15 mo (maximum duration of treatment on trial)  | \*2 carriers(\*2/\*2 or \*2/\*1)95% of all carriers = 375 | N = NRRate = 2.7% (Kaplan-Meier) | HR = 3.33 | 1.28, 8.62 | 0.004 [Kaplan-Meier] | ACS subtype (STE or NSTE was used as a stratification factor) | NO | Secondary outcome |
|  |  |  |  |  |  | Non-\*2 carriers(\*1/\*1)N = 1084 (= 1459 - 375) | N = NRRate = 0.8% (Kaplan-Meier rate) |  |  |  |  |  |  |
| Sibbing, 2009{Sibbing, 2009 133 /id}19193675GermanyNR | Clopidogrel 600 mg loading dose before stent placement | CYP2C19 \*2 | Stent thrombosis (definite) | Definite stent thrombosis according to the Academic Research Consortium criteria (ACS with angiographic or pathologic confirmation of thrombosis) | 30 days  | CYP2C19 \*2/\*2N = 47 | NR | NR | NR | P = 0.002[chi-square test for trend] | NO | NO | Additional data on the cumulative incidence is presented in Figure 2 |
|  |  |  |  |  |  | CYP2C19 \*2/\*1N = 633 | NR | NR | NR |  |  |  | Additional data on the cumulative incidence is presented in Figure 2 |
|  |  |  |  |  |  | CYP2C19 \*1/\*1N = 1805 | NR | NR | NR |  |  |  | Additional data on the cumulative incidence is presented in Figure 2 |
| Sibbing, 2009{Sibbing, 2009 133 /id}19193675GermanyNR | Clopidogrel 600 mg loading dose before stent placement | CYP2C19 \*2 | Stent thrombosis(definite) | Definite stent thrombosis according to the Academic Research Consortium criteria (ACS with angiographic or pathologic confirmation of thrombosis) | 30 days  | CYP2C19 \*2 carriers (\*2/\*2 and \*2/\*1)N = 680 | 10 | HR = 3.81HR = 3.86 | 1.45, 10.021.47, 10.14 | P = 0.007[Cox proportional hazards regression; carriers vs. non-carriers]P = 0.006[Cox proportional hazards regression; carriers vs. non-carriers] | UnadjustedAdjusted [age, diabetes, ACS, type of stent, substudy from which patient was selected, use of abciximab] | NO | None |
|  |  |  |  |  |  | CYP2C19 non-carriers (\*1/\*1)N = 1805 | 7 |  |  |  |  |  |  |
| Sibbing, 2010{Sibbing, 2010 95 /id}20083681GermanyPart of a prospective study of the Multiplate analyzer | Clopidogrel 600 mg loading dose; clopidogrel 75 mg (1/d) and aspirin 100 mg (2/d) maintenance.  | CYP2C19 \*17 | Definite or probable stent thrombosis | Definite stent thrombosis according to Academic Research Consortium Criteria = ACS with either angiographic or pathological confirmation of thrombosis; probable = any unexplained death or target vessel MI, without angiographic confirmation of thrombosis or other identified culprit lesion | 30 d | \*17/\*17N = 76 | 1 (1.3%) | OR = 1.09 | 0.39, 3.02 | (carriers vs. non-cariers)[logistic regression]P = 0.79 (across 3 groups) [chi-square test for trend] | NO | NO | Primary efficacy endpoint |
|  |  |  |  |  |  | \*17/\*1N = 546 | 5 (0.9%) |  |  |  |  |  |  |
|  |  |  |  |  |  | \*1/\*1N = 902 | 8 (0.9%) |  |  |  |  |  |  |
| Wallentin, 2010{Wallentin, 2010 56 /id}20801498Multiple countries (43 countries in North America, South America, Europe, Asia, Australia)PLATO | 75 mgclopidogrel once daily (300–600 mg loading dose) | CYP2C19 genotyping | Deﬁnite stent thrombosis | Deﬁnite stent thrombosis | 30 days | Any LOF allele (\*2-\*8) | 934 (2.3%) | NR | NR | NR | NR | NR | NR |
|  |  |  |  |  |  | No LOF allele | 2300 (1.5%) |  |  |  |  |  |  |
| Bonello, 2010{Bonello, 2010 45 /id}20708365FranceNR | All patients received oral LDs of 250 mg aspirin and 600 mg clopidogrel at least 6 h before the first VASP index measurement | CYP2C19 | Stent thrombosis | Stent thrombosis | In hospital  | Wild-typeN = 277 | 0 (0%) | NR | NR | NS | NR | NR | None |
|  |  |  |  |  |  | Heterozygotes 2C19\*2N = 123 | 1 (1%) |  |  |  |  |  |  |
|  |  |  |  |  |  | Homozygotes 2C19\*2N = 11 | 0 (0%) |  |  |  |  |  |  |
| Tiroch, 2010{Tiroch, 2010 62 /id}20826260GermanyNR | aspirin (100mg twice daily) and clopidogrel ( 75mg once Daily) | CYP2C19\*2 GG | Stent thrombosis | Stent thrombosis | 1 year  | CYP2C19\*2 GG | 680 | N(%)7 (1.0) | NR | 0.822CYP2C19\*2 GG vs \*2 A allele  | NR | NR | no |
|  |  | CYP2C19\*2 A allele | Stent thrombosis | Stent thrombosis | 1 year  | CYP2C19\*2 A allele | 248 | N(%)3(1.2) | NR |  |  |  |  |
| Tiroch, 2010{Tiroch, 2010 62 /id}20826260GermanyNR | aspirin (100mg twice daily) and clopidogrel ( 75mg once Daily) | CYP2C19\*2 GG | Stent thrombosis | Stent thrombosis | 1 year  | CYP2C19\*2 GG | 565 | N(%)6 (1.1) | NR | 0.964CYP2C19\*17 CC vs T allele | NR | NR | no |
|  |  | CYP2C19\*2 A allele | Stent thrombosis | Stent thrombosis | 1 year  | CYP2C19\*2 A allele | 363 | N(%)4 (1.1) | NR |  | NR | NR |  |
| Sawada, 2010{Sawada, 2010 36 /id}21099121JapanNR | loading dose of clopidogrel (300 mg) and maintenance dose of clopidogrel (75 mg/day) and aspirin (100 mg/day)  | CYP2C19 |  Intra-stent thrombus |  Intra-stent thrombus | Mean 243.8 days |  Non-carrier | 58 | 9(15.5) |  | 0.0002 Non-carrier vs \*2 carrier | No | No | no |
|  |  |  |  Intra-stent thrombus |  Intra-stent thrombus | Mean 243.8 days | \*2 carrier  | 42 | 22 (52.3) |  |  | No  | No  |  |
|  |  |  |  Intra-stent thrombus |  Intra-stent thrombus | Mean 243.8 days |  Non-carrier | 100 |  | 2.475-16.812 | 0.0001 \*2 carrier vs non-carrier  | No | No |  |
|  |  |  |  Intra-stent thrombus |  Intra-stent thrombus | Mean 243.8 days |  Non-carrier | 100 |  | 3.401-36.018 | 0.00006 \*2 carrier vs non-carrier  | Yes, age, sex, factors with p<0.2 | No |  |
| Campo 201121679849ItalyNR | aspirin (300 mg [LD + 100 mg daily, . Clopidogrel 600 mg LD+ 75 mg/day for 12 months. | TaqMan | Definite or probable stent thrombosis (Academic Research Consortium classification) | Definite or probable stent thrombosis (Academic Research Consortium classiﬁcation) | 1 mo to 1 yr after PCI | \*2 noncarriersN = 219 | 3 (1.4%) | NR |  NR | NR | NO | NO | NO |
|  |  |  |  |  |  | \*2 carriersN = 81 | 1 (1.2%) |  |  |  |  |  |  |
|  |  |  |  |  |  | \*17 noncarriersN = 198 | 4 (2.0%) | NR | NR | NR | NO | NO | NO |
|  |  |  |  |  |  | \*17 carriersN = 102 | 0 (0.0%) |  |  |  |  |  |  |
| Harmsze 2010{Harmsze, 2010 6 /id}20833683NetherlandsNR | Clopidogrel+aspirin | Real-time PCR | Stent thrombosis | NR | Any time within 1 yr after PCI | CYP2C19\*2 carriers | fNR | Crude OR 1.6Adjusted OR 1.7 | Crude CI 1.1-2.3Adjusted CI 1.0-2.6 | Crude P 0.013Adjusted P 0.018[Logistic regression] | YES for potential confounders (i.e., a ge, gender, body mass index (BMI), smoking, diabetes mellitus, prior MI, the use of PPIs, the use of CCBs, acute coronary syndrome (ACS) as the indication for PCI, peri-procedural variables being stent length, stent diameter, and stent type (bare metal or drug eluting), and the use of glycoprotein IIb/IIIa antagonists during the procedure) | YES (by performing the false discovery rate test (q-value threshold 0.20)) | NO |
|  |  |  |  |  |  | CYP2C19\*2 noncarriers |  |  |  |  |  |  |  |
|  |  |  |  |  |  | CYP2C19\*2 carriers  |  | OR 1.7 | 1.0 –3.1 | 0.040 [Multivariate analysis] |  |  |  |
|  |  |  |  |  |  | CYP2C19\*2 noncarriers |  |  |  |  |  |  |  |
|  |  |  | Acute stent thrombosis | Occurrence within the ﬁrst 24 h after PCI |  **ﬁrst 24 h after PCI** | CYP2C19\*2 carriers  |  | Crude OR 1.3Adjusted OR 1.7 | Crude CI 0.8–2.3Adjusted CI 0.8–3.5 | Crude P 0.34Adjusted P 0.11 [Logistic regression] |  |  | NO |
|  |  |  |  |  |  | CYP2C19\*2 noncarriers |  |  |  |  |  |  |  |
|  |  |  | Subacute stent thrombosis | from 24 h to 30 days after PCI | **24 h to 30 days after PCI** | CYP2C19\*2 carriers  |  | Crude OR 2.0Adjusted OR 2.5 | Crude CI 1.3–3.3Adjusted CI 1.1–5.5 | Crude P 0.003Adjusted P 0.026[Logistic regression] |  |  | NO |
|  |  |  |  |  |  | CYP2C19\*2 noncarriers |  |  |  |  |  |  |  |
|  |  |  | Late stent thrombosis | from 30 days to 1 year after PCI |  **30 days to 1 year after PCI** | CYP2C19\*2 carriers  |  | Crude OR 1.0Adjusted OR 1.4 | Crude CI 0.4 –2.6Adjusted CI 0.6–9.5 | Crude P 0.92Adjusted P 0.54[Logistic regression] |  |  | NO |
|  |  |  |  |  |  | CYP2C19\*2 noncarriers |  |  |  |  |  |  |  |
| Sibbing 2011{Sibbing, 2011 2 /id}21527445GermanyNR | Clopidogrel | TaqMan assay | Early ST | Stent thrombosis ≤30 days after stenting | **≤30 days after stenting** | \*2/\*1 |  Had event 33.9% of patients | Adjusted OR 2.27 vs \*1/\*1Unadjusted OR 2.25 | Adjusted 1.08 – 4.74Undadjusted 1.17 – 4.32 | Adjusted 0.03 (multivariable logistic regression model that assumed a codominant allele effect )Undadjusted 0.015 | YES for adjusted [all baseline variables]NO for unadjuseted | NR | NONE |
|  |  |  |  |  |  | \*2/\*2 | Had event 2.4% |  |  |  |  |  |  |
|  |  |  |  |  |  | \*2 noncarrier (\*1/\*1) | Had event 63.7% |  |  |  |  |  |  |
|  |  |  |  |  |  | \*2/\*2 | Did not have event 22.9% |  |  |  |  |  |  |
|  |  |  |  |  |  | \*2/\*1 | Did not have event 2.2% |  | OR 1.51\*2 vs. non carrier | 1.04 – 2.18 |  |  |  |
|  |  |  |  |  |  | \*2 noncarrier (\*1/\*1) | Did not have event 74.9% |  |  | P=0.019 for comparison of frequencies in this row and all above rows (chi-square) |  |  |  |
| Chen. 2012{Chen, 2012 18196 /id}22723959TaiwanCAPTAIN | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosis | 9 months | CYP2C19\*2 | 15 | OR=4.2 | 1.263-9.544 | 0.031 | NO | NR | no |
|  |  |  |  |  |  | CYP2C19\*3 | 2 | OR=0.83 | 0.315-4.451 | 0.577 | NO | NR |  |
|  |  |  |  |  |  | CYP2C19\*17  | 0 | - | - | - | No | NR |  |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosis | 9 months | CYP2C19\*2 | 75% in ST | NR | NR | NR | NR | NR | no |
|  |  |  |  |  |  |  | 40 in Non-ST |  |  |  |  |  |  |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosis | 9 months | CYP2C19\*3 | 1015in ST | NR | NR | NR | NR | NR | no |
|  |  |  |  |  |  |  | 40 in Non-ST |  |  |  |  |  |  |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosis | 9 months | CYP2C19\*17 | 0% in ST | NR | NR | NR | NR | NR | no |
|  |  |  |  |  |  |  | 0 in Non-ST |  |  |  |  |  |  |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosisacute | 9 months | CYP2C19\*2AA | n=2 (40%) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosisacute | 9 months | CYP2C19\*2GA | n=2 (40%) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosisacute  | 9 months | CYP2C19\*2GG | n=2 (20%) | NR | NR | NR | NR | NR | no |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosissubacute | 9 months | CYP2C19\*2AA | n=0 (0) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosissubacute | 9 months | CYP2C19\*2GA | n=4 (57.1) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosissubacute  | 9 months | CYP2C19\*2GG | n=3 (42.9) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosislate | 9 months | CYP2C19\*2AA | n=2 (28.6%) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosislate | 9 months | CYP2C19\*2GA | n=4 (57.1) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosislate | 9 months | CYP2C19\*2GG | n=1 (42.9) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosisvery late | 9 months | CYP2C19\*2AA | n=0 | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosisvery late | 9 months | CYP2C19\*2GA | n=1 (100%) | NR | NR | NR | NR | NR | no |
|  | clopidogrel | CAD patients undergone PCI with stenting | stent thrombosis | stent thrombosisvery late | 9 months | CYP2C19\*2GG | n=0 | NR | NR | NR | NR | NR | no |
| Luo, 2011{Luo, 2011 18198 /id}22118006ChinaNR | LD clopidogrel 300mg and MD 75mg/d and aspirin 300mg LD and MD 100mg/d | CYP2C19\*1/\*1 | stent thrombosis | stent thrombosis (definite)  | 6 months | CYP2C19\*1/\*1 | 7/936 | HR 4.26 | 1.28-9.22 | <0.05comparing with the next rowchi-square test  | NR | NR | no |
|  |  | CYP2C19\*1/\*2 or \*2/\*2 |  |  |  | CYP2C19\*1/\*2 or \*2/\*2 | 19/802 |  |  |  |  |  |  |
| Luo, 2011{Luo, 2011 18198 /id}22118006ChinaNR  | LD clopidogrel 300mg and MD 75mg/d and aspirin 300mg LD and MD 100mg/d | CYP2C19\*2 | stent thrombosis | stent thrombosis | 6 months | CYP2C19\*2 | NR | HR3.38 | 1.25-9.34 | <0.01 comparing with non \*2 carriercox proportional model | yes, age, tobacco use, DM, hypertension, calcium antagonist, tirofiban, omeprazile.  | NR | no |
| Delaney, 2012{Delaney, 2012 18204 /id} 22190063USA N | clopidogrel  | CYP2C19\*2 | ST | Stent Thrombosis,  | 2 years | CYP2C19\*2 SNP rs4244285 | NR | HR=2.79 | 0.7-11.16 | 0.147 comparing with non carrier of \*2 | No | NR | no |
|  | clopidogrel  | CYP2C19\*17 | ST | Stent thrombosis | 2 years | CYP2C19\*17 SNP rs4244285 | NR | HR=0.27 | 0.04-2.09 | 0.210 comparing with non carrier of \*17 | No | NR | no |
| Nishio, 2012{Nishio, 2012 18214 /id}22785462JapanNR | Clopidogrel and aspirin | TaqMan | ST | NR | Any time during study | Extensive metabolizer (n=60) | 1 | NR | NR | Across this and next two rows, 0.79 (chi-square test) | NR | NR | NONE |
|  |  |  |  |  |  | Intermediate metabolizer (n=77) | 2 | NR | NR | NR | NR | NR | NONE |
|  |  |  |  |  |  | Poor metabolizer (n=23) | 1 | NR | NR | NR | NR | NR | NONE |
| Goodman, 2012{Goodman, 2012 18213 /id}22261200Multi-countryPLATO | Clopidogrel 300-mg loading dose, 75-mg daily maintenancedose | CYP2C19 \*2 | definite or probable stent thrombosis | stent thrombosis | 12 months | CYP2C19 loss-of-function carriers (\*2 through \*8) on a PPIn=434 | 11 (2.6%) | HR= 2.73 | 1.37–5.43 | NR | no | NR |  |
|  |  |  |  |  |  | non carriers of CYP2C19 loss-of-function allele or not taking a PPIn=2418 | 15 (0.6%) |  |  |  |  |  |  |
| Siller-matula, 2012{Siller-Matula, 2012 1 /id}22260716AustriaPEGASUS-PCI | clopidogrel LD 600mg, MD 75mg | CYP2C19 \*2 | Stent thrombosis | ST | 12 months | \*2/\*2 or \*1/\*2N=84 | 3 (2.7%) |  |  | 0.926(carrier vs noncarrier)[log rank test] | No | NR |  |
|  |  |  |  |  |  | \*1/\*1n-=167 | 4 (2.5%) |  |  |  |  |  |  |
|  |  | CYP2C19 \*2 | Stent thrombosis | ST | 12 months | \*2/\*2 or \*1/\*2 | NR | AUC: 0.56Sensitivity: 30%Specificity: 71% | AUC: 0.32–0.69) | 0.95(carrier vs noncarrier) | No | NR |  |
|  |  |  |  |  |  | \*1/\*1 | NR |  |  |  |  |  |  |
|  |  | CYP2C19 \*2 | Stent thrombosis | ST | 12 months | regular metabolizers (CYP2C19\*1/\*1)n=167 | 4 (2.1%) | NR | NR | P = 0.837(ANOVA) (between regular and heterozygote and homozygote poor metabolizers)) |  |  |  |
|  |  |  |  |  |  | Heterozygote poor metabolizers (CYP2C19\*1/\*2)N=nr | 3.2% |  |  |  |  |  |  |
|  |  |  |  |  |  | homozygotepoor metabolizers (CYP2C19\*2/\*2)n=NR | 0 |  |  |  |  |  |  |
| Jaitner, 2012{Jaitner, 2012 18188 /id}22298798GermanyNR | Pretreatment with a loading dose of 600 mg of clopidogrel prior to the procedure. The recommended pr-treatment interval was ≥ 2 h. | CYP2C19 \*2 | Stent Thrombosis | Definite stent thrombosis due to drug eluting stents | NA  | CYP2C19\*2 carrierN=378 | NR | OR=1.86 | 1.05-3.31 | P=0.03; (CYP2C19\*2 carriers versus theremaining patients)[logistic regression] | no | NR |  |
|  |  |  |  |  |  | CYP2C19\*2 noncarrierN=1096 | NR |  |  |  |  |  |  |
| Cayla, 2011{Cayla, 2011 18320 /id}22028352FranceONASSIST | clopidogrel or aspirin (Dose and frequency NR) | CYP2C19 \*2 | Stent Thrombosis | Stent Thrombosis | NA | CYP2C19\*2 carrierN=127 | 60 | OR(calculated)=2.53 | 1.61-3.97 | P=NR; (CYP2C19\*2 carriers versus noncarriers)[logistic regression] | no | NR |  |
|  |  |  |  |  |  | CYP2C19\*2 noncarrierN=241 | 63 |  |  |  |  |  |  |
|  |  | CYP2C19 \*4 | Stent Thrombosis | Stent Thrombosis | NA | CYP2C19\*4 carrierN=1 | 0 | NR | NR | NR | NR | NR |  |
|  |  |  |  |  |  | CYP2C19\*4 noncarrierN=367 | 123 |  |  |  |  |  |  |
|  |  | CYP2C19 \*17 | Stent Thrombosis | Stent Thrombosis | NA | CYP2C19\*17 carrierN=105 | 25 | OR (calculated)=0.53 | 0.31-0.88 | NR | NR | NR |  |
|  |  |  |  |  |  | CYP2C19\*4 noncarrierN=263 | 98 |  |  |  |  |  |  |
| Hulot, 2011{Hulot, 2011 18321 /id}21972404FranceAFIJI | MD clopidogrel 75 mg/d | CYP2C19 \*2-\*6 | Stent Thrombosis | Stent Thrombosis | 6 months | CYP2C19 loss-of-function alleles (\*2 through \*6): 107 | NR | HR=2.79 | 1.09-7.16 | P=0.03(LOF vs no LOF)[log rank test] | No | NR |  |
|  |  |  |  |  |  | No CYP2C19 loss-of-function alleles: 262  | NR |  |  |  |  |  |  |

TRITON-TIMI 38 = Therapeutic Outcomes by Optimizing Platelet Inhibition with Prasugrel-Thrombolysis in Myocardial Infarction