between qualifying ECG and coronary angiography for PCI in STEMI patients. Not following the ESC guidelines was associated with a three-fold increase in hospital mortality. A similar trend was observed for lytic-treated patients. When using the ESC guidelines for PCI seems unlikely, timely administration of fibrinolysis should be considered.

### In-hospital complications in relation with use and timing of prehospital antithrombotic medications in STEMI patients. The FAST-MI 2010 registry

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**Background:** France has a highly developed MICU system with emergency physicians on board the ambulances (SAMU), who have the ability to administer recommended medications at a very early stage of AMI.

**Aim:** To assess in-hospital outcomes in patients transported by the SAMU, in relation to the pre-hospital administration of antithrombotic medications and time from symptom onset to first call.

**Methods:** FAST-MI 2010 is a nationwide French registry that included 4169 patients with AMI at the end of 2010 in 213 centres. Of those, 2364 had STEMI, of whom 1868 (79%) were transported by the SAMU and 1836 had the time from symptom onset to first call recorded (78%).

**Results:** Time from onset to first call was ≤ 60 minutes in 923 pts (50%), 1172 pts (61%) received an antiplatelet agent, with 1010 receiving dual oral antplatelet therapy (DAPT), 55% in the ambulances. In addition, 27% received enoxaparin and 29% received unfractionated heparin. Patients calling within 60 min of onset had significantly higher prescription rates of antithrombotic therapy: 71% vs 67%, 62% vs 48%, 30% vs 24% for any antiplatelet therapy, DAPT, and enoxaparin, respectively. Younger age, male sex, short time from onset to call, absence of diabetes and lower GRACE score were independent predictors of the use of pre-hospital antithrombotic medications. Fibrinolysis treatment was administered prehospital in 11% (5% when onset to call ≤ 60 min vs 7% when onset to call > 60 min). When time from onset to call was ≤ 60 min, in-hospital mortality was lower with prehospital antithrombotic therapy: any antiplatelet 2.3% vs 5.9% (P < 0.001), DAPT 1.8% vs 6.0% (P < 0.001), any heparin 1.9% vs 5.7% (P < 0.002), prehospital tissue 2.9 vs 3.4% (P = NS). In contrast, prehospital antithrombotic therapy was not associated with lower in-hospital mortality when time from symptom onset to call was > 60 minutes: 2.7 vs 2.8%, 2.5 vs 3.0%, 2.4 vs 3.0%, 4.8 vs 2.6% respectively (all P = NS).

**Conclusion:** The use of prehospital antithrombotic therapy remains suboptimal in patients managed by physician-staffed ambulances. In patients calling early after symptom onset, the use of prehospital antithrombotic therapy was associated with lower 6-h hospital mortality. In contrast, in patients calling beyond one hour of symptom onset, the association with hospital mortality was neutral.

### Comparative validation of three contemporary bleeding risk scores in acute coronary syndromes


**Background:** Hemorrhagic complications are strongly linked with subsequent adverse outcomes in acute coronary syndrome (ACS) patients. Various risk scores (RS) are available to estimate the bleeding risk in these patients.

**Aims:** To compare the predictive accuracy of the three contemporary bleeding RS in ACS.

**Methods:** We studied 4500 consecutive patients with ACS. For each patient, the ACTION, CRUSADE, and Mehran et al bleeding RS were calculated. We assessed their performance either for the prediction of their own major bleeding events (c-statistic) or to predict the TIMI serious (major and minor) bleeding (males in the overall population, in patients with non-ST-elevation ACS (NSTEACS) and in those with ST-elevation myocardial infarction (STEMI) patients. Calibration (Hosmer-Lemeshow test) and discrimination (c-statistic) for the three RS were computed and compared. We used the concept of net reclassification improvement (NRI) to compare the incremental prognostic value of using a particular RS over the remaining scores in predicting the TIMI serious bleeding.

**Results:** The best predictive accuracy was obtained by the CRUSADE score either for the prediction of its own major bleeding events (c-statistic=0.80, 0.791, and 0.81 for the entire sample, for STEMI, and for NSTEACS patients, respectively) or to predict the TIMI serious bleed occurrence (c-statistic=0.741, 0.738, and 0.745 for the whole population, for STEMI and NSTEACS patients, respectively. The lowest bleeding rates observed in patients classified as low risk corresponded to the CRUSADE RS. All scores performed modestly in patients who did not undergo coronary angiography (c-statistic=0.70). The CRUSADE score was significantly superior to the ACTION model in predicting the TIMI serious bleeding occurrence in terms of NRI overall and by ACS subgroups (p < 0.05). Overall, the CRUSADE RS exhibited better calibration and discrimination compared to the ACTION and Mehran et al scores (Hosmer-Lemeshow p-values of 0.26, 0.13, and 0.07, respectively).

**Conclusion:** The CRUSADE score represents, among the more contemporary bleeding RS, the most accurate and reliable quantitative clinical tool in STECS and STEMI patients. We encourage the utilization of the CRUSADE index for bleeding risk stratification purposes in daily clinical practice and in ACS outcome studies. The performance of the three more contemporary bleeding RS is modest in those patients who received conservative management.