

A well organized regional network is a major determinant of improvement of acute myocardial infarction management

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Purpose: We assessed the impact of a regional network implementation on the management of acute myocardial infarction with ST-elevation (STEMI), in terms of reperfusion decision and transfer destination.

Methods: Our network has defined in 2007 common guidelines reproducing those of European Society of Cardiology (ESC) among 37 hospitals to improve MI care pathway and transfer of STEMI. To evaluate their impact, the emergency doctors involved in the network were asked to include in a prospective register all suspected MI when first medical contact (FMC) was a Mobile Intensive Care Unit (MICU). Recent data were compared to those collected before the guideline dissemination. The acute phase indicators as defined by French National Authority for Health (FNAH) were evaluated: rate and time to reperfusion, rate of direct referral to transfer to cath-lab, rate of patients receiving anti-platelet therapy, analgesia and heparin, and 30 day mortality.

Results: Between February 2008 and June 2010, 1184 patients were managed by 18 MICU and 8 cath-labs. Their data were compared to those of 545 patients managed between 2004 and 2006, using the same inclusion criteria and analysis. The comparison of the FNAH indicators shows: (1) a significant improvement ($p<0.05$): of the reperfusion rate (all techniques) from 86% to 96%, of direct transfer to cath-lab from 65% to 93%, of those receiving primary percutaneous coronary intervention (PPCI) from 35% to 79%, of antalgic therapy from 33 to 50%, unfractionned heparin from 68% to 5%, and low molecular weight heparin from 12 to 85%. The rate of clopidogrel therapy, recently implemented reached 87% in second period; (2) a significant reduction ($p<0.05$) of the: median "door to balloon" time from 135 to 104 min, thrombolytic therapy rate from 66% to 24% and rate of patients not receiving reperfusion therapy from 14 to 4%; (3) a reduction of 30 day hospital mortality rate from 7% to 6%. 30 day mortality from January 2010 to June 2010 was 4%.

Conclusions: The establishment of regional network allowed improving STEMI care pathway since FMC to reperfusion for patients managed by MICU. The access to reperfusion therapy and recommended treatments for patients has significantly improved, according to regional guidelines, with a privileged referral to cath-labs. Guideline and clinical practice indicators are efficient tools to implement good practices according to guidelines, to evaluate, to improve and to follow-up professional practices.