Abstract: 682

Time quality indicators for ST elevation myocardial infarction and relation to in hospital mortality: results from the Belgian STEMI database

Authors:
J Lysens De Oliveira E Silva¹, S Gevaert², Y Slayts¹, P Sinnaeve³, S Bosmans¹, P Coussen⁴, C Beauloye⁵, P Dubois⁶, H De Raedt⁷, P Evrard⁸, JF Argacha⁹, S Pourbaix¹⁰, O Van Caenegem⁵, M J Claeyς¹, University of Antwerp Hospital - Antwerp - Belgium, ²Ghent University Hospital (UZ) - Ghent - Belgium, ³University Hospitals (UZ) Leuven - Leuven - Belgium, ⁴St-Jan Hospital - Bruges - Belgium, ⁵Catholic University of Louvain (UCL) - Leuven - Belgium, ⁶CHU de Charleroi - Charleroi - Belgium, ⁷Cardiovascular Center Aalst - Aalst - Belgium, ⁸CHU Mont Godinne - Mont Godinne - Belgium, ⁹University Hospital (UZ) Brussels - Brussels - Belgium, ¹⁰Citadelle Regional Hospital - Liege - Belgium.

Topic(s):
ST-Elevation Myocardial Infarction (STEMI)

Citation:

Background:
Applications of established quality indicators for ST elevation myocardial infarction (STEMI) are only valid if there is a gap between evidence and practice and whether this gap results in worse outcome. Previous evaluation of the Belgian STEMI database revealed good adherence to most of the STEMI recommendations except for time delays between diagnosis and treatment. The present study aims to investigate the relationship between variation in time delay and in hospital mortality in Belgium STEMI patients treated with primary percutaneous coronary intervention (pPCI).

Methods:
A total of 5776 STEMI patients, admitted in 55 Belgian hospitals during the period 2015-2017 were enrolled in the STEMI database and had complete time data available. Diagnosis-to-balloon time (DiaTB) and door-to-balloon (DoTB), defined as time between arrival in the PCI center and first balloon inflation, were correlated to in hospital mortality with correction for differences in baseline risk profile (TIMI risk score). A time quality score (0-4) was assigned to each patient according to summation of following rules: DiaTB>120 min =0; DiaTB 90-120 min =1, DiaTB<90min =2 and DoTB>90min =0; DoTB 60-90min =1; DoTB < 60min =2.

Results:
The average time quality score was 2.9 ± 1.3 with good adherence to recommended time lines (score 4) in 47% of the patients and lack of adherence (score 0) in 7.6% of the patients. In hospital mortality was 6.2%. There was a significant independent correlation between the time quality score and the in-hospital mortality (adjusted OR 0.81 (95% CI 0.7-0.89) with observed mortality rates of 12.6% in pts with score 0 and of 5.0% in patients with score 4 (see figure). Additional analysis revealed that DoTB was a better outcome predictor than DiaTB. The time quality score increased from 2.8 in 2015 to 3.1 in 2017 (p=0.001) but without significant effect on mortality.

Conclusions:
Good adherence to recommended time lines was present in only half of the Belgian STEMI patients and was associated with the lowest in hospital mortality rate. A more systematic implementation of this time quality indicator will help to improve current inequities in quality of care in Belgium.
Abstract: Time quality indicators for ST elevation myocardial infarction and relation to in hospital mortality: results from the Belgian STEMI database

Authors: J Lysens De Oliveira E Silva, S Gevaert, Y Sluyts, P Sinnaeve, S Bosmans, P Coussement, C Beauloye, P Dubois, H De Raedt, P Evrard, JF Argacha, S Pourbaix, O Van Caenegem, M JClaeys

1 University of Antwerp Hospital - Antwerp - Belgium, 2 Ghent University Hospital (UZ) - Ghent - Belgium, 3 University Hospitals (UZ) Leuven - Leuven - Belgium, 4 St-Jan Hospital - Bruges - Belgium, 5 Catholic University of Louvain (UCL) - Leuven - Belgium, 6 CHU de Charleroi - Charleroi - Belgium, 7 Cardiovascular Center Aalst - Aalst - Belgium, 8 CHU Mont Godinne - Mont Godinne - Belgium, 9 University Hospital (UZ) Brussels - Brussels - Belgium, 10 Citadelle Regional Hospital - Liege - Belgium

Background: Applications of established quality indicators for ST elevation myocardial infarction (STEMI) are only valid if there is a gap between evidence and practice and whether this gap results in worse outcome. Previous evaluation of the Belgian STEMI database revealed good adherence to most of the STEMI recommendations except for time delays between diagnosis and treatment. The present study aims to investigate the relationship between variation in time delay and in hospital mortality in Belgium STEMI patients treated with primary percutaneous coronary intervention (pPCI).

Methods: A total of 5776 STEMI patients, admitted in 55 Belgian hospitals during the period 2015-2017 were enrolled in the STEMI database and had complete time data available. Diagnosis-to-balloon time (DiaTB) and door-to-balloon (DoTB), defined as time between arrival in the PCI center and first balloon inflation, were correlated to in hospital mortality with correction for differences in baseline risk profile (TIMI risk score). A time quality score (0-4) was assigned to each patient according to summation of following rules: DiaTB > 120 min = 0; DiaTB 90-120 min = 1; DiaTB < 90 min = 2; DoTB > 90 min = 0; DoTB 60-90 min = 1; DoTB < 60 min = 2.

Results: The average time quality score was 2.9 ± 1.3 with good adherence to recommended time lines (score 4) in 47% of the patients and lack of adherence (score 0) in 7.6% of the patients. In hospital mortality was 6.2%. There was a significant independent correlation between the time quality score and the in-hospital mortality (adjusted OR 0.81 (95% CI 0.7-0.89) with observed mortality rates of 12.6% in pts with score 0 and of 5.0% in patients with score 4 (see figure). Additional analysis revealed that DoTB was a better outcome predictor than DiaTB. The time quality score increased from 2.8 in 2015 to 3.1 in 2017 (p=0.001) but without significant effect on mortality.

Conclusions: Good adherence to recommended time lines was present in only half of the Belgian STEMI patients and was associated with the lowest in hospital mortality rate. A more systematic implementation of this time quality indicator will help to improve current inequities in quality of care in Belgium.