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Significance Of Reciprocal ST Segment Depression In ST Elevation Myocardial Infarction

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BACKGROUND The significance of reciprocal ST segment depression (RSTD) during acute myocardial infarction has been an area of debate, whether it is a sign of multivessel disease, ischemia at a distance or merely a benign electrical phenomenon.

OBJECTIVE To Study the relationship between the presence of RSTD in ST elevation myocardial infarction (STEMI) and the extent of coronary artery disease & left ventricular systolic function.

METHODS The current study was conducted as a prospective, randomized, controlled single center study involving 200 STEMI patients (100 inferior STEMI, 100 anterior STEMI) admitted to the Critical Care Department, Cairo University in the period between January 2011 & January 2014. The studied patients were grouped into 2 groups (A anterior & B inferior STEMI), each group was sub-grouped into 2 subgroups according to the presence of RSTD in non-infarcted leads (A1, B1) or absence (A2, B2). Patients were subjected to echocardiographic assessment of LV systolic function (LVEF %) & coronary angiography to assess extent & severity of coronary artery disease using modified Gensini score (MGS).

RESULTS In both anterior & inferior STEMI, patients with RSTD showed a statistically significant lower mean left ventricular ejection fraction (LVEF) compared to those without RSTD (37±3% vs 53±5% respectively, P< 0.001 in anterior STEMI) & (47±4% vs 60±3%, respectively, P< 0.001 in inferior STEMI). Higher incidence of multivessel disease was found in subgroups with RSTD (80.5% vs 49.2%, P< 0.001 in anterior STEMI) & (60% vs 20%, P< 0.001 in inferior STEMI). The mean MGS was significantly higher in subgroups with RSTD compared to those without RSTD (64.2±12.6 vs 30.2±6.6, P< 0.001 in anterior STEMI) & (36.2±10.6 vs 20.4±4.2, P< 0.001 in inferior STEMI). In anterior STEMI, patients with RSTD showed a statistically significant higher incidence of significant RCA lesions (75.6% vs 42.4%, P< 0.001) & LCX lesions (48.8% vs 27.1%, P value 0.023). Significant LAD lesions were significantly higher in inferior STEMI patients with RSTD (78% vs 24%, P< 0.001).

CONCLUSION Reciprocal ST segment depression in non-infarcted leads in the setting of acute myocardial infarction (anterior or inferior) was associated with significant LV systolic dysfunction & greater extent of coronary artery disease.

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Telemedicine As A Landmark In The Reduction Of The Door-to-balloon Time In STEMI In Distant Areas In A Developing Country

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BACKGROUND In remote regions of developing countries, far from major hospitals, there is a serious problem of ineffective treatment of patients with STEMI, both by the lack of trained physicians in detecting STEMI as the difficulty in transferring the patient to a hemodynamic laboratory in an effective time. The telemedicine LATIN program (Latin America Infarct Telemedicine Network) consists on the development and implementation of a telemedicine protocol in which patients with chest pain in faraway hospitals are immediately submitted to EKG, which are sent through telemedicine to referral centers with cardiologists 24 hours/day responsible for detection of infarcts. STEMI patients immediately are indicated to primary percutaneous coronary intervention (primary PCI), going straight to the cath lab without having to go through emergency department of referral hospital.

Hypothesis: The study objective was to evaluate the impact of the LATIN Protocol on reducing door-to-balloon time in primary PCIs in comparison to the time of the usual hospital protocol.

METHODS 50 consecutive patients treated by primary PCI STEMI in periods outside of normal working hours, ie, were evaluated during the night shift on weekdays and all day on weekends and holidays. 25 consecutive STEMI patients from the usual treatment protocol from the institution were included in the period of November 2013 to August 2014, which were compared to 25 LATIN Program patients from September 2014 to November 2014. It was applied chi-square test and student's t-test, with statistical power of 90%.

RESULTS The number of STEMI rose significantly after the beginning of LATIN protocol, since in just 3 months after the institution of this new protocol 25 patients were included, the same equivalent of the last 9 months of those who had been treated following the usual protocol. The average time from initial EKG at the original hospital (OH) to ICP at the reference hospital (RH) hospital was 132 (92-300) minutes in patients from LATIN new protocol. The average transfer time from the OH to the RH was 98,5 (49-260) minutes. The average door-to-balloon (DTB) time (entry in the RH to ICP) was 32 (26-46) minutes for LATIN protocol patients, compared with 85 (40-100) minutes of the institution's standard protocol DTB time (p < 0,05).

CONCLUSION LATIN program significantly increased the volume of STEMI treated in the institution, once it tripled the number of patients treated compared to the usual protocol. The DTB time was significantly reduced after the implementation of telemedicine LATIN protocol.

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The Role Of Conventional Percutaneous Coronary Intervention, Manual Thrombectomy and Mechanical Thrombectomy during Primary Percutaneous Coronary Intervention for ST-segment Elevation Myocardial Infarction: A Network Meta-Analysis of Randomized Trials

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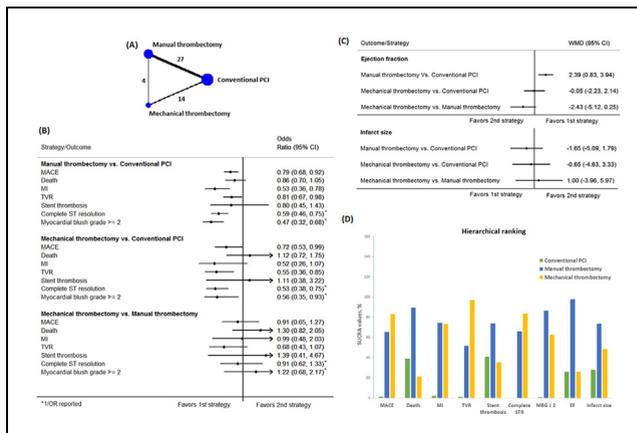
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BACKGROUND The evidence for the use of conventional percutaneous coronary intervention (cPCI), manual thrombectomy (MT) and mechanical thrombectomy (McT) during primary PCI (PPCI) for ST-segment elevation myocardial infarction (STEMI) is conflicting. Moreover, there is a dearth of direct evidence comparing MT versus McT. A network meta-analysis allows for indirect comparisons in a head-to-head fashion.

METHODS Electronic search of PubMed, EBSCO, Google Scholar and abstracts from conferences identified 41 randomized trials (Fig 1A) that compared the use of at least 2 of the 3 strategies (cPCI, MT, and McT) during PPCI. Mixed treatment analysis was performed for the earliest available (1-36 months) clinical and procedural endpoints.

RESULTS When compared with cPCI, MT and McT were associated with a lower incidence of major adverse cardiovascular events (MACE), which is a composite of death, myocardial infarction (MI) and target vessel revascularization (TVR)(Fig 1B). The rate of complete ST-segment resolution (> 50-70%) at 60 minutes (STR) and post-procedural myocardial blush grade ≥ 2 (MBG) were higher with MT and McT (Fig 1B). Additionally, MT was associated with a lower incidence of MI and higher final ejection fraction (EF) compared to cPCI (Figs 1B and 1C). However, MT was no different than McT for all the endpoints. No statistical inconsistency was noted in the network. MT was highest in hierarchical ranking order (highest to lowest) by comparative efficacy for death, MI, stent thrombosis, MBG, EF (up to 3 months) and final infarct size (up to 3 months) while McT was highest for MACE, TVR and STR (Fig 1D). cPCI was lowest in the hierarchical ranking order for all endpoints.

CONCLUSION Reducing the thrombus burden during PPCI for STEMI with either MT or McT improves clinical outcomes and procedural efficacy compared to cPCI.



ANTIPLATELET THERAPY

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Clinical Impact Of Platelet Reactivity In Korean Patients With Coronary Artery Disease

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BACKGROUND Platelets are closely associated with vascular occlusive event.

METHODS We evaluated platelet reactivity measured by the VerifyNow P2Y12 assay and clinical outcomes in patients with coronary artery disease treated with clopidogrel and percutaneous coronary intervention of real world practice. We recruited