to hemodynamic parameters, MMP-2 activity and levels of LDH and MLC1 were measured.

Results: An infusion of mixture of subthreshold concentrations of Doxy (1 μM), ML-7 (0.5 μM) and L-NAME (2 μM) before onset of ischemia led to full recovery of heart contractility (Fig. 1) and improved coronary flow. Moreover, this pharmacological approach decreased release of LDH into perfusate, reduced proteolytic degradation of structural and functional proteins, and reduced phosphorylation and nitration/nitrosylation of MLC1.

Conclusions: The results of this study showed that the co-administration of subthreshold doses of Doxy, ML-7, and L-NAME protected heart contractility from I/R injury and can be used for the prevention and therapy in clinical setting.

Acknowledgement/Funding: This study was funded by the polish National Science Centre, grant no. NCN2014/15/B/NZ3/04865.

P5566 | BEDSIDE

Risk factors for microvascular obstruction assessed by magnetic resonance imaging in patient with ST elevation myocardial infarction

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Background: Microvascular obstruction (MVO) assessed by magnetic resonance imaging (MRI) is a prognostic factor after ST-elevation myocardial infarction (STEMI). We investigated the risk factors associated with MVO.

Methods: A total of 218 patients with STEMI underwent primary percutaneous coronary intervention (PCI). We examined intravascular ultrasound (IVUS) and optical coherence tomography (OCT) before stent implantation and MRI within 1 week after PCI. We estimated relationship among MVO, lesion morphology and clinical characteristics.

Results: MVO was seen in 92 patients (42%). MVO was observed in 45% of men vs. 29% of women (p=0.04). There was a significant difference in coronary risk factors. MVO in LAD was more frequently observed than in RCA and LCX respectively (54% vs. 35% vs. 24%, p=0.004). MVO group had higher incidence of abnormal Q wave in the ECG on admission (70% vs. 30%, p<0.01). Peak creatine kinase area was significantly higher in MVO group than in no-MVO group (1700±1238 IU/L vs. 4135±2165 IU/L, p<0.01). In the OCT findings, the presence of ruptured plaque was observed more frequently in MVO group than in no-MVO group (71% vs. 50%, p<0.01). In the IVUS findings, attenuated plaque length was significantly longer in MVO group than in no-MVO group (8.0±5.5 mm vs. 5.5±4.6 mm, p<0.01), and vessel area at minimal lesion area was significantly greater in MVO group (18.0±5.6 mm² vs. 15.4±6.9 mm², p<0.01). In multivariable regression, the presence of ruptured plaque (odds ratio (OR) 2.50, confidence interval (CI) 1.16–5.38, p=0.02) and abnormal Q wave (OR 4.27, CI 2.01–9.07, p<0.001) were the independent predictors of MVO.

Conclusion: Ruptured plaque and abnormal Q wave were associated with the incidence of MVO. Our results may be useful for stratifying the prognosis of STEMI.

P5567 | BEDSIDE

Myocardial infarction: the price of a new left bundle branch block

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Background: Guidelines recommend treating patients with a new or presumed new left bundle branch block (LBBB) similar to those with an acute ST-segment elevation myocardial infarction (STEMI). In these patients, minimizing delays is known to be associated with improved outcomes. We aim to analyze and compare the different components of delay from patients with new LBBB to patients with ST-elevation, understanding if LBBB patients are differently treated. In-hospital delays and therapeutic interventions, in order to combine the main criteria into a risk score and to provide best guidance for initial medical strategy.

Methods: A retrospective analysis of data from consecutive STEMI patients enrolled in a multicenter national registry from October 2010 to September 2016 was conducted among 6165 patients, 69 (1.1%) of whom had new LBBB. The clinical characteristics and coronary angiographic findings were evaluated and compared between patients with new LBBB and with ST-elevation on ECG. Different components of delay were considered according the following timings: symptom onset (SO), first medical contact (FMC) and reperfusion therapy (RT), including time to needle (if RT is fibrinolysis) or to balloon (if RT is percutaneous coronary intervention). The endpoint IHM was assessed through logistic regression model.

Results: There were differences between LBBB and ST-elevation patients regarding age (69±12 vs. 64±14, p=0.002) and cardiovascular risk factors [hyper-tension (79.1% vs. 61.0%, p=0.002) and diabetes (38.2% vs. 23.9%, p=0.006)]. LBBB patients had less frequently typical angina as the mainly symptom (85.5% vs. 93.1%, p<0.001, 0.01), and a more severe acute event (Killip-Kimball class - I (46.4% vs. 14.2%, p<0.001)). RT was more frequently performed in ST-elevation patients (60.9% vs. 82.2%, p<0.001). There were no significantly differences regarding the endpoint IHM (LBBB: 10.1% vs. ST-elevation: 5.4%, p=0.101).

Conclusions: Individuals with LBBB are particularly important stratum of patients to identify. This is true not only because they have a higher baseline risk profile but also because there is a tendency to delay their treatment. For reasons not properly understood they are undertreated and managed with reperfusion therapy less frequently.

P5568 | BEDSIDE

Risk factors for microvascular obstruction assessed by magnetic resonance imaging in patient with acute ST-elevation myocardial infarction complicated by pre-hospital cardiac arrest

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Introduction: To optimize therapeutic strategies and prognosis of acute ST-segment elevation myocardial infarction (STEMI), the early management care of patients and delays reduction are determinant issues. But what happens to STEMI patients when they are immediately complicated with cardiac arrest (CA)? Our purpose is to compare the outcome of patients complicated with CA to a control group.

Methods: From 2009 to 2014, 4694 STEMI patients were reported in a multicenter and observational data registry. We identified two groups of patients: 280 (6.96%) patients with CA as main reason of call or occurring during pre-hospital medical care (AC group) and 4414 (94.03%) STEMI transferred to Interventional Cardiology Center (ICC) (control group). The comparison of groups concerns the general characteristics of the patient pathway including delays and therapeutic strategy and the follow-up at 1 month and 12 months.

Results: The two groups differ statistically at the level of the median age (58 [49–69] in CA group vs. 62 [52–74] years old in the control group). We also observed differences in exposure to cardiovascular risks such as smoking activity (57% vs. 43%), hypertension (30% vs. 44%) and dyslipidemia (23% vs. 37%). Delay between the onset of symptom and the call to emergency dispatch center is about 10 [5–45] minutes for AC group and 45 [20–106] minutes for control group (p<0.001). The “symptom - first medical contact” delay was 55 [37–94] min in the CA group and 108 [60–212] min in the control group (p<0.001). Transfer time to ICC was about 53 [36–78] minutes in CA group and 60 [41–93] minutes in control group (p<0.001). In-hospital mortality remains higher in CA group (30% vs. 3%, p<0.001), notwithstanding effective reperfusion (20% with initial Thrombolysis In Myocardial Infarction TIMI flow grade 3, 88% with final TIMI flow grade 3). The only different mortality in CA group and control group is respectively about 5% and 2% (p<0.001).

Conclusion: Despite early patient management and effective revascularization, CA in acute phase of STEMI is associated with bad prognosis. To achieve an optimal medical care of patients with STEMI complicated by CA, we observe a crucial need to identify and characterize prognostic factors, in particular pre-hospital determinants, in order to combine the main criteria into a risk score and to provide best guidance for initial medical strategy.

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P5569 | BEDSIDE

Diagnosis and management of spontaneously recanalized coronary thrombus guided by optical coherence tomography: lessons from lotus root French registry

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1Institut Mutualiste Montsouris, Paris, France; 2Civils Hospices of Lyon, Lyon, France; 3Hospital Center, cardiology, Hagueneau, France; 4Hospital Center of Avignon, Avignon, France

Background: Although coronary lesions with spontaneous recanalization of thrombi have been reported pathologically, there are not well known and rarely diagnosed in clinical practice.

Objectives: Our aim is to assess by optical coherence tomography (OCT) the morphological characteristics, the diagnosis and the management of coronary lesions with spontaneous recanalization of thrombi.
Methods: Spontaneous recanalization of coronary thrombi were identified with OCT based on histopathological features and are included in a multicentre French facilities: LOTUS ROOT French Registry.

Results: Overall, 34 recanalized thrombi were identified with OCT in 33 patients (23 males, average age 58±11 years). Based on symptoms, 22/33 patients (67%) were diagnosed with angina and/or dyspnea; and among the 11 patients who were asymptomatic, 9 reveal positives for a challenging test. We identified three major morphological characteristics of coronary lesions: braded, pseudodissected, or mix. Quantitative angiographic measurements showed stenosis from 11 to 100% (median 45%), whereas the OCT evaluated the reduction of the lumen surface from 20 to 92% (median 68%). The Opt imaging diagnosed a lotus root-like structure with multiple intraluminal channels, 3 to 12 channels with different sizes, divided by thin septa communicating with each other with high signal intensity and low signal attenuation, consistent with intraluminal thrombus recanalization. The OCT analysis allowed us to manage the therapeutic strategy of stenting in 91% cases after measuring the length and diameters of lesions. The 21 months follow-up was positive for 91% of the patients.

Conclusion: This is the biggest cohort of patients studied so far with intraluminal thrombus recanalization. The OCT is a method of choice for diagnosis and provides new insights into the phenotypic features of lesions. Thus, the OCT imaging allows a better management of therapeutic strategies of lesions that cause angina and silent myocardial ischemia with an accurate prognosis.

PS570 | BEDSIDE
Worse outcome after acute myocardial infarction is related to archaea microparticles and their exosomes
1196 Latest on STEMI

Background: We searched if EL MPs have archaeal DNA and if they are in increased numbers in patients with AMI. In a previous work we found electron lucent (EL) microparticles containing archaeal DNA in vulnerable atheromas.

Purpose: We searched if EL MPs have archaeal DNA and if they are in increased numbers in the serum of AMI patients and related to worse outcome.

Methods: We studied serum samples from two longitudinal clinical studies: ELSA (Brazilian Longitudinal Study of Adult Health) and ERICO (The Strategy of the Registry of Acute Coronary Syndrome), consisting of approximately 5000 and 1500 patients, respectively with stable atherosclerosis or with acute myocardial infarction. These groups include 10 patients each group. G1 - STEMI, survived longer than 30 days; G2 - with AMI, died before 30 days and G3- stable atherosclerosis. Samples of sera were submitted to a gradient separation technique, with a mannitol/sucrose rich solution. After centrifugation, the supernatant was fixed and processed to Electron Microscopy (EM) and immunohistochemistry at EM technique using anti-M. pneumoniae lipoproteins antibody. The numbers of ELs and MPs were counted in 4 photos in 50K magnification of each case, which represented the richest areas in the supernatant by electron microscopy (EM). The quantification of MPs containing archaeal DNA was made by flow cytometry (FC) using biotinylated probe. The comparison between the groups was performed by ANOVA and Spearman correlation test.

Results: The differences between the groups are shown in the table. EM showed significantly higher amount of non electron lucent Exos from G1 and G3 than G2 and no difference regarding EL exos. FC showed increased numbers of archaea DNA positive MPs (0.7-1.3μm) in G2 than in G3. Correlation was significantly different between EL exos vs EL MPs (r=0.43; P<0.005) in G2, but not in G1 (r= -0.04; P=0.82) or in G3 (r=0.18; P=0.27).

Table 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>G1</th>
<th>G2</th>
<th>G3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electro microscopic analysis</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>EL Exo</td>
<td>0.1 (0.5)</td>
<td>0.725 (2.3)</td>
<td>0.9 (5.2)</td>
</tr>
<tr>
<td>EL MP</td>
<td>0.025 (0.2)</td>
<td>0.025 (0.2)</td>
<td>0.4 (1.2)</td>
</tr>
<tr>
<td>EL Exo</td>
<td>0.03 (0.5)</td>
<td>0.04 (0.5)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Flow cytometry analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archelalized MP</td>
<td>0.05 (0.03)</td>
<td>0.065 (0.03)</td>
<td>0.035 (0.02)</td>
</tr>
<tr>
<td>Mean (SD) numbers of ELs and EL MPs at EM and of MPs by FC in serum supernatant from G1, G2 and G3.</td>
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</table>

Conclusion: EL MPs are possibly Archaea, releasing EL exos in the serum of patients with worse outcome after AMI. They may have a role in reducing the numbers of protective exosomes (not electron lucent), present in long time survivors of AMI and in stable atherosclerotic patients.

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PS571 | BEDSIDE
Fatal acute myocardial infarction related to lack of exosomes and low removal of free Mycoplasma pneumoniae lipoproteins
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Background: Exosomes are in increased numbers in peripheral blood of patients with acute myocardial infarction (AMI). In previous work we found in fatal ruptured atherosclerotic plaques, large lipidic content of Mycoplasma pneumoniae lipoprotein, suggesting participation of plaque infection in bad outcome after AMI.

Purpose: We searched if different quantities of Exos in the serum differentiate fatal AMI, non fatal AMI and stable atherosclerotic patients and if it is related to removal of free M. pneumoniae lipoproteins from the serum.

Methods: We studied 3 groups of 10 sera samples from two longitudinal clinical studies: ELSA (Brazilian Longitudinal Study of Adult Health) and ERICO (The Strategy of the Registry of Acute Coronary Syndrome), consisting of approximately 5000 and 1500 patients, respectively with stable atherosclerosis and with AMI: G1 - AMI with STE patients, who survived longer than 30 days; G2- Patients with fatal AMI, died before 30 days; G3- stable atherosclerotic patients. Samples were submitted to a gradient separation technique, with a mannitol/sucrose rich solution. After centrifugation, the supernatant was fixed and processed to Electron Microscopy (EM) and immunohistochemistry at EM technique using anti-M. pneumoniae lipoproteins antibody. The numbers of Exos and M. pneumoniae positive dots in Exos or free (outside Exos) were counted in 4 photos in 50K magnification, case, comprising the richest areas of Exos and M. pneumoniae. The comparison among the groups was performed by ANOVA and Spearman correlation tests.

Results: The differences among the groups were shown at table. There was a strong correlation between numbers of exos and positive dots in Exos of G1, G2 and G3 (r=0.61, r=0.75 and r=0.84; P<0.001) and negative correlation with free dots in G1 (r=-0.60; P<0.01) and G3 (r=-0.56; P<0.001), but not in G2 (r=-0.24; P=0.21).

Table 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>G1</th>
<th>G2</th>
<th>G3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exosomes vs. M. pneumoniae in the serum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exosomes in Exos</td>
<td>176</td>
<td>28.5</td>
<td>308</td>
</tr>
<tr>
<td>M. pneumoniae dots in Exos</td>
<td>9</td>
<td>0.5</td>
<td>5</td>
</tr>
<tr>
<td>Exosomes in free</td>
<td>26.5</td>
<td>48.5</td>
<td>24</td>
</tr>
<tr>
<td>M. pneumoniae dots in free</td>
<td>0.004</td>
<td>0.03</td>
<td></td>
</tr>
</tbody>
</table>

Comparison between median numbers of Exos and M. pneumoniae dots in or free in sera from G1, G2 and G3.

Conclusion: Abundant Exos in the serum may have a role in removing infectious lipoproteins in stable atherosclerotic and long time survivors AMI patients. Lack of Exos associated with increased free M. pneumoniae lipoproteins may favor development of fatal large lipidic plaque.

Acknowledgement/Funding: CNPq 471854/2013-1

PS572 | BEDSIDE
Coronary arterial branch occlusion during primary percutaneous coronary intervention with ST-segment elevation myocardial infarction is not associated with atrial arrhythmias at one-year follow up
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Background: Atrial arrhythmias (AA) in patients with ST-segment elevation myocardial infarction (STEMI) are associated with worse prognosis. Selective atrial branch occlusion due to coronary arterial branch occlusion (ABO) in elective percutaneous coronary interventions (PCI) might be a source of AA. However, the incidence and evolution of ABO, and its association with AA in STEMI patients remains unknown.

Purpose: To determine 1) the frequency of ABO in STEMI patients 2) the angiographic evolution (patency vs occlusion) over time and 3) its impact in the occurrence of AA at one-year follow up.

Methods: Patients with STEMI involving the right or circumflex coronary artery treated with primary PCI from 2004 to 2013 and without known AA were retrospectively analyzed. Index coronary angiograms were assessed to identify those PCIs involving the origin of a coronary arterial branch (AB). Patients were classified according to the AB patency at the end of PCI. ABO was defined as a reduction >2 TIMI score grades after the procedure. Clinical data and ECGs recordings during hospitalization were collected. In addition, patients were followed-up during one year according to the institutional care track protocol which includes regular outpatient follow up, 24-hour Holter-ECG at 3 and 6 months and re-catheterization at 12 months. AA were defined as follows: 1) documented atrial fibrillation (AF), 2) atrial tachycardia (>3 consecutive supraventricular ectopic beats) 3) excessive supraventricular ectopic activity (>30 supraventricular beats/hour or runs >20 beats). Follow up angigrams in ABO patients were evaluated to check arterial branch patency.

Results: Of 714 patients with STEMI involving the right or circumflex coronary artery treated with non known AA were evaluated. 207 (age 60±12 years, 85% male) had a PCI involving the origin of an AB. The sinus node artery was the most frequent AB involved (53%), followed by left circumflex arterial (21%), left anterior circumflex arterial (12%), minor right atrial branches (10%) and atrioventricular node artery (4%). ABO was observed in 13 individuals (6%), being the sinus node artery the most frequently occluded (69%). ABO was related with AB ostial disease (P=0.013). There were no differences in clinical, procedural characteristics or AB anatomical distribution in patients with ABO vs. non-ABO. A 12 months follow-up, ABO was not related to higher rates of AA compared patients with non-ABO (ABO vs. non-ABO; 39% vs. 53%; P=0.396). A follow-up coronary angiography was performed in 11 ABO patients (85%), showing a patent AB in 10 cases (91%).