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## Risk stratification and timing for invasive approach in patients with non-STEMI



We decipher with interest the study by Langabeer II et al. with large cohort [1], which provide visionary points about gender disparities in patients presenting with non-STEMI acute coronary syndrome. Although its well-designed conception, we want to address some points that need more attention.

The paper [1] clearly demonstrated that males presenting with non-STEMI in younger ages, as expected. But in females, the course of the disease is more catastrophic because of the fact that women have more diabetes. Beside these findings consistent with the literature, the guidelines recommend that quantitative assessment of ischemic risk because of its superiority to the clinical assessment alone [2]. The most accurate stratification of risk is the GRACE risk score [3] recommended by European guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation, as long as TIMI [4,5]. Patients with non-STEMI must be evaluated immediately by risk scores to identify individuals with life-threatening arrhythmias and those with ongoing myocardial ischemia requiring close surveillance as well as emergent coronary angiography [6]. Although the risk is highest at presentation and decreases rapidly over time, also it may remain high for several days due to comorbidities, coronary anatomy and revascularization [7]. Furthermore, concomitant diseases, drugs used and major bleeding are associated with increased mortality. Furthermore, it is advisable to use bleeding risk score, namely CRUSADE [8], for achieving balanced treatment strategy. In addition to the findings related to gender disparities in this study population, it would be more appropriate to evaluate the risk stratification and also the above-mentioned risk factors to conclude the results.

Therefore, coronary angiography and treatment of culprit lesions by percutaneous coronary intervention should be performed in patients with non-STEMI. However, approximately one fourth of non-STEMI patients have angiographically normal or non-obstructive coronary arteries. The indication for an invasive approach, the timing for myocardial revascularization (immediate invasive strategy (<2 h), early invasive strategy (<24 h), invasive strategy (<72 h), selective invasive strategy) and the selection of the revascularization modality depend basically on clinical features and risk stratification as outlined before [6]. Langabeer II et al. found in their cohort that patients with non-STEMI who presented later, have longer emergency length of stay, are less likely to receive an early invasive management approach [1], as expected. All in all, longer emergency department length of stay and longer delay in seeking treatment after their symptom onset should be necessary for assessment of clinical, ECG, and cardiac biomarkers which is mandatory for risk scoring. We want to emphasize that findings will be more reliable and valuable, with a better study design where these clinical scoring systems and clinical features are used as well as gender.

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### Reply to the letter entitled “Risk Stratification and Timing for Invasive Approach in Patients with non-STEMI”



We appreciate the supportive comments in the letter entitled “Risk stratification and Timing for Invasive Approach in Patients with Non-STEMI” in response to our original article entitled “Gender-Based Outcome Differences for Emergency Department Presentation of Non-STEMI Acute Coronary Syndrome” [1]. Current literature supports the use of coronary angiography and revascularization for the majority of patients with Non-ST-Segment Elevation Myocardial Infarction (NSTEMI). Although the timing of coronary angiography and revascularization remains controversial, we do agree that clinical features and risk stratification play an important role in this decision. Still, we believe shortening treatment delays including time to patient presentation, emergency department length of stay (LOS) as well as important clinical outcomes such as overall hospital LOS and mortality remain important goals.

As we noted in the original article, this was a retrospective observational registry, did not include randomization and no long-term outcomes were available. Nevertheless, the registry is a large contemporary regional MI database with 33 percutaneous coronary intervention centers which provides important insights into contemporary therapy. Our results indicate women present later, have longer emergency department LOS, and are less likely to receive early intervention; all of which may contribute to the higher in-hospital mortality which persisted even after adjustment in age and co-morbidities. These results should encourage not only further investigation, but also the development of NSTEMI protocols that ensure health equity for women.

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### Comments on GEDI vs. CVP goal-directed fluid resuscitation for COPD patients with septic shock: A randomized controlled trial



To the Editor,

We have read the paper written by Jiangquan Yu et al. [1] with great interest. A study was conducted to investigate the clinical effects of the global end-diastolic volume index (GEDI)-oriented fluid resuscitation on chronic obstructive pulmonary disease (COPD) patients with septic shock, which resulted that the GEDI goal-directed fluid therapy did improve clinical effects, but it could not reduce the mortality rate. We appreciate the authors for their successful work. However, in order to avoid misinterpretation, some points need be further discussed.

In this article, the authors did not estimate the sample size. The sample size is very important for a clinical research. If it is too small, a false negative result may be obtained even if the most rigorous study is performed. If it is too large, more difficulties and unnecessary expenses will be generated. In this paper, the sample-size calculation should be based on the assumed volume of intravenous fluids administered during the first 6 h in the CVP (central venous pressure)-oriented group of 1713 ml [2]. The software of PASS (power analysis and sample size) is used. Thus, an enrollment of 130 patients would have a power of 80% (at a two-sided alpha level of 0.05) to detect a 30% increase of fluids volume in the GEDI-directed group, with allowance for a 10% loss to follow-up [3,4].

In this clinical study, the authors divided the COPD patients with septic shock into the experimental group and the control group. The experimental group received GEDI goal-directed fluid resuscitation, while the control group was given CVP goal-directed therapy. The value of CVP was assumed to be 12, and the value of GEDI was 800 ml/m<sup>2</sup>. According to Surviving Sepsis Campaign (2012) [5], the target value of CVP should be 12–15 mm Hg for mechanically ventilated patients. And the recognized target value for GEDI is 680–800 m/m<sup>2</sup>. In this clinical study, the authors selected the lowest value for CVP and the highest one for GEDI. It may result in a low fluid capacity for the control group, which is possible to bias experimental data.

According to surviving sepsis campaign: international guidelines for management of sepsis and septic shock: 2016 [6], norepinephrine is recommended for booster drugs. Vasopressin (maximum dose 0.03 U/min) or epinephrine may be added to achieve the target mean arterial pressure. Also, dopamine can be used as a replacement for norepinephrine in specific patient populations (e.g., patients with low-risk risk of tachyarrhythmia/absolute and relative bradycardia). Dobutamine is recommended for patients with continuous low perfusion despite adequate fluid loading and vasoactive drugs are administered. Therefore, the author should list and compare the types and doses of all vasoactive drugs, not just the dose of norepinephrine.

At last, we are sincerely grateful for Jiangquan Yu et al.'s fruitful work. Although there are some minor issues that need to be further discussed and improved, it is definitely still a very meaningful clinical study.

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