Author's response to reviews

Title: Chest pain in the emergency department: risk stratification with Manchester triage system and HEART score

Authors:

Luís Leite (luispcleite@gmail.com)
Rui Baptista (ruibaptista@gmail.com)
Jorge Leitão (jorge.a.leitao@gmail.com)
Joana Cochicho (joana.cochicho@gmail.com)
Filipe Breda (filipebreda82@gmail.com)
Luís Elvas (luisdvelvas@netcabo.pt)
Isabel Fonseca (isabelalbuquerque1@sapo.pt)
Armando Carvalho (aspcarvalho@gmail.com)
José Nascimento Costa (nascimentoCosta@netcabo.pt)

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Author's response to reviews: see over
Dear Editor,

I am pleased to resubmit the revised version of the MS: 9725563121287196. We appreciated the valuable comments of the Referees, which enabled us to improve the quality of our manuscript.

Regarding the editorial comments included in the e-mail, the name of the ethics committee that approved our study is now included in the manuscript (line 123-125: “The research protocol was approved by the local ethics committee (Comissão de Ética para a Saúde do Centro Hospitalar e Universitário de Coimbra”).

We also have addressed the comments of the Referee 2 and Referee 3, as outlined below.

Referee 2:

In general, the authors have agreed to make the changes I suggested.

Regarding the authors' response (previous line 294): "According to the Portuguese Stent For Life initiative (www.stentforlife.pt) for 2013, only 38% of the Portuguese STEMI patients had called the Emergency Medical Services Systems. This means that in our country the majority of the STEMI patients go directly to a healthcare institution. Therefore we consider that one of the main consequences of a non-reliable triage is to delay the time from patient arrival to ECG acquisition, potentially delaying reperfusion therapy for STEMI patients."

This logic is not obvious to me. The important thing here is the number of STEMI vs NSTEMI/UA patients presenting to the ED. I would guess that the STEMI-patients are a clear minority.

Response:

This is an excellent discussion indeed. The data we have presented in the previous cover letter about the low proportion of STEMI patients that phoned the Emergency Medical Services to enable medicalized transport to the hospital and pre-emptive activation of the primary PCI team, means that (unfortunately) the majority of STEMI diagnoses are made during the ED stay.

Although it is true that the proportion of non-ST-segment elevation ACS patients is higher than of STEMI patients, the benefit of a timely recognition of an ST-segment elevation on the ECG obtained immediately after the patient arrival to the ED is crucial to streamline the time to primary PCI therapy in the STEMI context.
and decisively contributes to better outcomes for patients. That is the reason why we argued that the time from patient arrival to ECG acquisition should be one of our main focus in decreasing the delays in chest pain management in the ED, as recommended by the latest European Society of Cardiology guidelines.

Referee 3:
This is an interesting validation study and it should be eventually published, after polishing few details. Phrases like “… were independently associated with …” are contradictory and (almost infinitely) bad. They should be replaced with a more sensible formulations (easily as: were associated with). Similar clumsy formulations appear on other places as well - e.g. “Multivariate analysis was performed by a logistic regression adjusted for …” which stands almost certainly not for a multivariate method (that would analyze two or more response variables simultaneously), but merely with a multiple logistic regression (which is safely a standard univariate regression method).

Response:
We have adjusted some sections of the manuscript in order to make it clearer.
In the methodology section, we have rephrased the logistic regression description as suggested (line 174-175: “Multiple logistic regression adjusted for confounding factors was performed considering any variable with p < 0.25 in univariate analysis.”).
We have also adjusted the abstract and the results section according to the raised concerns of the Referee (line 64-65: “Male gender, smoking and chronic kidney disease were associated with higher risk of ACS”; line 231-234: “male gender (odds-ratio (OR) 4.48; 95% confidence interval (CI), 1.12 - 17.40; p = 0.030), smoking (OR 4.22; 95% CI, 1.21 - 14.74; p = 0.024) and chronic kidney disease (OR 8.21; 95% CI, 1.76 - 38.16; p = 0.007) emerged as independent predictors of ACS in this population.”).
In the discussion section of the manuscript, we have made some minor changes to make it clearer (line 259: “to identify the risk of MACE in a short term period”, instead of “to identify patients with a high risk of MACE in a short term period”).
We have decided to make this change as the negative predictive value of HEART score low-risk category was even higher than the positive predictive value of the
high-risk category, allowing the identification of both small and high risk populations.

We have worked carefully to respond to the comments raised by the Reviewers and we hope you will find this version of the manuscript worthy of publication.

With best wishes,
Luís Leite, MD, MSc