Author's response to reviews

Title: Quality of care of patients with acute myocardial infarction in Bulgaria: a cross-sectional study

Authors:

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Author's response to reviews:

Re: MS 7519491831949738 — Quality of care of patients with acute myocardial infarction in Bulgaria: a cross-sectional study

To the Editorial Board – Health Services Research:

We thank you and the reviewers very much for your helpful comments and suggestions. We have now incorporated most of the recommendations. In the following, we will address (a) the main concerns you have summarized and (b) each of the further concerns.

Detailed suggestions of reviewer (Mr. Havranek):

(1) Reviewer (Mr. Havranek) drew attention to the cessation of smoking as part of the hospital management of ACS. We agree with reviewer (Mr. Havranek), but have to concede to the fact that a cessation of smoking is seldomly achieved in Bulgarian hospitals. Oftentimes, patients are even not asked about their smoking habits or their habits are not stated in the inpatient charts. Thus, we did not include the subject in this paper.

(2) Reviewer (Mr. Havranek) required clarification regarding the time of medication use as well as the denominators and inclusion criteria. We accepted the requirement and clarified this subject in the “Abstract” as well as in the paragraph “Treatment at discharge” of the section “Results”, and Table no.4.

(3) Reviewer (Mr. Havranek) suggested including the 95% confidence intervals for the medication used. We accepted the recommendation (see Table no. 4).

(4) Reviewer (Mr. Havranek) as well as reviewer (Mr. Glickman) suggested that the regression models may be removed from the paper. We ascertained that the regression models need revision and could be subject of a separate article. Thus, we accepted the suggestion and left them out.

Detailed suggestions of reviewer (Mr. Glickman):

(5) Point 1 – Abstract (page 2): Reviewer (Mr. Glickman) marked the discrepancy between the method of data collection and the terminology used in the paragraph “Abstract”. Therefore, we modify the term accordingly.
(6) Point 2 – Background (page 4): Reviewer (Mr. Glickman) noticed that the second paragraph of the section “Background” is too long and suggested summarizing its content. We accepted the proposal, shortened the paragraph, and reorganized the background section.

(7) Point 2 – Background (page 4): Reviewer (Mr. Glickman) recommended referring to articles from the NRMI and CRUSADE projects, which demonstrated the gaps in the adherence to evidence based guidelines for AMI management. We accepted the recommendation and changed the section accordingly.

(8) Point 3 – Methods – Study region (page 5): Reviewer (Mr. Glickman) asked for more information about the pre-hospital emergency services available in Bulgaria. We accepted the suggestion and added an explanation on this subject. We also included the information about transport to the hospital in the section “Results”.

(9) Point 4 – Methods (page 6) – Study population: Reviewer (Mr. Glickman) recommended including the criteria used in Bulgaria for determining the diagnosis AMI. We agreed and added the criteria used in hospital settings for defining the diagnosis of an AMI.

(10) Point 4 – Methods – Study population (page 6): Reviewer (Mr. Glickman) asked, whether patients with unstable angina/chest pain were included in the study population. Patients with unstable angina or chest pain were not included in the study population.

(11) Point 5 – Methods - Pre-hospital time delay (page 7): Reviewer (Mr. Glickman) recommended explaining in further detail the methodology that was used to perform chart reviews as well as the qualification, the training and the number of study personal who collected the data. We agreed with the recommendation and added some explanations accordingly. The person who performed the chart reviews was a physician, not a member of the hospital staff. He visited each study hospital three times a month and collected the data in a structured collection form. The questions concerning the patient SES as well as the patient self-evaluation of the interval of time up to hospital admittance were formulated in advance. A description of the interviewing staff was included in the paragraph “Socio-economic status” of the section “Methods” - (see page 8).

(12) Point 5 – Methods - Pre-hospital time delay (page 7): Reviewer (Mr. Glickman) also asked for the reason why we categorized the pre-hospital time into six intervals. Because of the prolonged time delay in Bulgaria, usual practice for STEMI patients is the implementation of fibrinolysis up to 12 hours from the onset of symptoms. We therefore wanted to evaluate the number of patients who arrived at the hospital within the “golden” 4 h and how many of these were able to receive fibrinolysis according to the practice in Bulgaria. The finding that one quarter of the patients with AMI was admitted after more than 24 h was unexpected for us as well.

(13) Point 6 – Methods - Medical history (page 7): Reviewer (Mr. Glickman) suggested adding a comprehensive description in the paragraph “Medical history” on page 7, as to the estimate of patient treatment and our ability of assessing whether the patients were eligible for particular medication or whether
they were excluded due to existing contraindications. In general, the preexisting conditions and contraindications have to be registered in the inpatient records. Despite this fact, we checked the charts for additional information on co-morbidity, medical history and the results of blood tests in order to identify contraindications for fibrinolytic and heparin treatment. In the section “Methods”, we included an additional description of the specific contraindications (see page 8).

(14) Point 7 – Methods - Statistical analysis (page 9): We gratefully accepted the suggestions for a revision of the regression model. As we have already explained, we intend to prepare a separate paper and the suggestions of reviewer (Mr. Glickman) will be taken into consideration. Nevertheless, we included a sentence on the complications during the in-hospital episode of care in the section “Methods”, paragraph “In-hospital data” and added a new Table no. 3.

(15) Point 8 – Results - Study population (page 9): Reviewer (Mr. Glickman) inquired about the discrepancy in the ratio of STEMI to non-STEMI patients between our findings and data from the U.S. and other countries as well. Similar findings have been reported for other Bulgarian regions in previous studies (reference no. 12). A proportion of NSTEMI to STEMI near 1:1 was reported in the GRACE-study (reference no. 16). According to our opinion, the Bulgarian findings are caused by a number of reasons: 1) Most frequently, CK-MB is used as a cardiac biomarker and only few hospitals provide investigations of troponin and even these do so in only a limited number of cases because of its high cost. In general, the diagnosis is based on clinical symptoms, ECG and CK-MB fractional changes. 2) The possibility for providing invasive diagnostic and invasive treatment is fairly limited. 3) In rural areas, patients are left at home with the diagnosis “Angina” by the general practitioner, without further diagnostic efforts and in many cases under insufficient treatment. 4) The access to outpatient medical specialists is very limited, especially in rural areas.

As mentioned previously, the ratio of STEMI to non-STEMI patients we found does not differ from previous Bulgarian studies, but unfortunately the problem has not been investigated in larger populations up to now.

Because of the fact that we used the discharge diagnosis as inclusion criteria, we discussed the problem in the “limitations” section, which we included at the end of the paper.

(16) Point 9 – Results - Pre-hospital time delay (page 10): Reviewer (Mr. Glickman) suggested shortening of the paragraph “Pre-hospital time delay”. We agreed with the suggestion and shortened the paragraph accordingly.

(15) Point 10 – Results - Fibrinolytic treatment (page 12): We agree with the recommendation by reviewer (Mr. Glickman) to recalculate the ratio of patients who received fibrinolytic therapy. For this recalculation, we used the number of STEMI-patients eligible for fibrinolysis patients, excluding the subjects with contraindications and those who arrived after 12 hours of symptom onset as denominator. We also added new data about men and women receiving fibrinolytic therapy.
(16) Point 11 – Results - Conservative treatment (page 12): We accepted the recommendation by reviewer (Mr. Glickman) and checked the denominators for each medication. We also added additional columns in Table no. 4 (previous Table no.3), including separate columns with 95% confidence intervals, therapy in men and therapy in patients # 65 and # 65 years.

(17) Point 12 – Discussion - Pre-hospital time delay (page 14) – We agreed with the suggestion by reviewer (Mr. Glickman) and shortened the paragraph accordingly.

(18) Point 13 – Discussion - Fibrinolytic treatment (page 16): Reviewer (Mr. Glickman) recommended shortening the paragraph “Fibrinolytic treatment” in the section “Discussion”. We accepted the recommendation and shortened the paragraph accordingly.

(19) Point 14 – Conclusions – Mortality (page 20): Reviewer (Mr. Glickman) recommended changes in our conclusions concerning the female mortality rates. We accepted the recommendation and changed the text accordingly.

(20) Point 16 – Conclusion – Additional (page 20): We accepted the recommendation of reviewer (Mr. Glickman) and included a limitation section at the end of the paper.

(21) Point 15 – Table 1 (page 27): We agreed with the suggestion of reviewer (Mr. Glickman) and included the information about SES in Table no. 1.

(22) Because reviewer (Mr. Glickman) suggested linguistic corrections, we had our revision proof-read by American colleagues.

We hope that our revision addressed all comments appropriately and look forward to your decision.

Sincerely,
Prof. Dr. M. Geraedts