11-1-2020

In reply

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Recommended Citation
Nowak RM, Peacock WF, and deFilippi CR. In reply. Ann Emerg Med 2020; 76(5):692-693.

is time to promote the use of the 0/1-hour algorithm to lessen ED congestion and reduce the risk of nosocomial coronavirus disease 2019 infection.

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https://doi.org/10.1016/j.annemergmed.2020.05.038

Funding and support: By *Annals* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see www.icmje.org). The authors have stated that no such relationships exist.

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In reply:

We thank Chiang et al[1] for their meta-analysis and resulting recommendation for the global use of the European Society of Cardiology (ESC) 0/1-hour algorithm for the rapid assessment of patients presenting to the emergency department (ED) with symptoms suspicious for acute myocardial infarction and also for its update that has incorporated the results of the High Sensitivity Cardiac Troponin I in the United States study.[2] Although we agree with the overall recommendation that the use of the ESC 0/1-hour algorithm for the rapid assessment of patients presenting with symptoms suspicious for acute myocardial infarction should be more broadly implemented in the ED in countries around the world, we suggest some precautions. Data from Europe, the United States, Australasia,[1] and South America[3] support the overall use of this ESC algorithm. However, there is no information available about how it might perform in other individuals (race, size, diet, comorbidities, etc) such as those in Asia, India, and Africa. In these other populations, the ESC algorithm should be the preferred one used until further studies are completed and the algorithm is either validated or an alternative one recommended.

We report, as others have, that the ESC high sensitivity cardiac troponin I acute myocardial infarction rule-out cut points are also applicable to many subgroups of patients presenting to the ED, including those with symptoms onset in less than or equal to 3 hours. However, we do not know whether outcomes will be the same for patients presenting to the ED with even shorter symptoms onset ($\leq$1 hour) because few of these patients have been studied. Consequently, in our opinion, it remains prudent to consider a third high sensitivity cardiac troponin I test later for the rule-out of acute myocardial infarction in these very early presenters until more data concerning this patient population are available.

The good news is that using the ESC 0/1-hour acute myocardial infarction assessment algorithm in the

coronavirus disease 2019 era to rule out cardiac injury should decrease ED congestion, given its high negative predictive and sensitivity values for acute myocardial infarction rule-out. However, coronavirus disease 2019 patients with elevated high sensitivity cardiac troponin measurements reflecting acute cardiac injury will have more complex management because the cardiac injury may be caused by circulating cytokines from severe systemic inflammatory stress, leading to atherosclerotic plaque instability and rupture (type 1 acute myocardial infarction); caused by increased myocardial demand from the infection, causing a supply-demand mismatch (type 2 acute myocardial infarction); or possibly caused by acute myocarditis caused directly by the virus itself.[4] Although coronavirus disease 2019 patients with acute cardiac injury have a worse clinical prognosis,[5] it will be more difficult to determine the exact cause of the cardiac injury and hence what the optimal therapeutic approach should be for each patient.

Ultimately, we, along with Chiang et al, believe that the global implementation of a rapid high sensitivity cardiac troponin algorithm for the assessment of patients with possible acute myocardial infarction or cardiac injury will result in optimal patient assessments and outcomes. Last, the use of high sensitivity cardiac troponin in the ED is a rapidly evolving field, and so alternative algorithms for the rapid assessment of acute myocardial infarction in the ED may soon be recommended.

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https://doi.org/10.1016/j.annemergmed.2020.05.037

Funding and support: By *Annals* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see www.icmje.org). Dr. Nowak has received fees from Siemens Healthineers as a consultant for the design and conduct of this trial. He has been or is a consultant for Siemens Healthineers, Roche Diagnostics, Beckman Coulter, Ortho Diagnostics, and Abbott. Dr. Peacock reports receiving research grants from Abbott, Braincheck, Immunarray, Janssen, Ortho Diagnostics, Relypsa, and Roche; being a consultant for Abbott, Astra-Zeneca, Bayer, Beckman, Boehringer-Ingelheim, Ischemia Care, Dx, Immunarray, Instrument Labs, Janssen, Nabriva, Ortho Diagnostics, Relypsa, Roche, Quidel, and Siemens Healthineers; providing expert testimony for Johnson & Johnson; and having stock/ownership interests in AseptiScope Inc., Brainbox Inc., Comprehensive Research Association LLC, Emergencies in Medicine LLC, and Ischemia DC LLC. Dr. deFilippi reports receiving research support from Inova; being a consultant for Abbott Diagnostics, FujiRebio, Metabolomics, Ortho Diagnostics, Roche Diagnostics, and Siemens Healthineers; receiving honoraria from WebMD; and receiving royalties from UpToDate. The HIGH-US study was supported/funded by Siemens Healthcare Diagnostics Inc.

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