

Correspondence

Neurogenic stunned myocardium following hemorrhagic cerebral contusion

To the Editor

I have read with much interest the article by Deleu et al.¹ However, I have inquiries for which I would like a clarification. 1. According to the abstract, the cardiac enzymes are elevated, which means myocardial injury in the form of myocardial infarction or myocardial contusions. Both have been disproved in the text of this article, and this diagnosis will change their conclusion. 2. In the text, only one set of cardiac enzyme was given, which cannot give a conclusion. The reading of cardiac enzymes was not elevated as the cardiac ratio creatine kinase myocardial isoenzyme (CK-MB) was less than 2%. The CK-MB was given in percent (4.5%), which is not correct (it should be ng/ml). The troponin T is less than 0.1 ng/ml (0.08), which is a negative result. 3. The echocardiogram showed segmental wall motion hypokinesia in the presence of global akinesia (this is confusing, as global akinesia will mask the segmental hypokinesia). 4. At what stage was the echocardiogram carried out (during supraventricular tachycardia, sinus tachycardia or bradycardia, and pre-ictal or post ictal)? This is a very important point in interpretation of the result. 5. Is head computed tomography (CT) scan repeated to confirm the association between resolution of echo findings and head CT event? 6. Electrocardiogram (ECG) showed left ventricular hypertrophy (LVH), which was normalized on day 12 (normal ECG). How do they explain the resolution of LVH? 7. Hemodynamic instability occurred after 6 days with sympathetic overflow. Does this offer the diagnosis of stress-induced cardiomyopathy or neurogenic stunning? 8. Clinically, is there a parameter of LV failure, such as high central venous pressure, high pulmonary capillary wedge pressure, or chest x-ray findings?

I would like to thank the authors for their real effort in the management of this case, and for reporting an interesting paper.

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Reply from the Author

We appreciate the interest of Dr. El-Menyar in our article, and we thank him for his thoughtful comments.

Each of his concerns are addressed: 1. As correctly stated in the abstract and the case description, 6 days after admission the myocardial enzymes were elevated. The criteria of neurogenic stunned myocardium include, in our patient, elevated myocardial enzymes in the absence of myocardial infarction or contusion. Hence, we disagree that the diagnosis has to be revised. 2. We believe that it is well-accepted that troponin levels of >0.03 ng/mL are considered elevated.^{2,3} Obviously, our patient did not have a myocardial injury otherwise troponin levels would indeed have revealed values higher than >0.1 ng/mL.⁴ All cardiac enzymes were mildly elevated in our patient, which probably coincided with mild transient myocardial ischemia during the stunning period. 3. As documented and reported, the echocardiogram showed indeed apical, inferoposterior hypokinesia and diffuse left ventricular akinesia with very low ejection fraction, and left ventricular enlargement. We verified this statement with original report and it is accurate. 4. The echocardiogram was carried out when the patient was in sinus rhythm and in between the episodes of supraventricular tachycardia, hypertension and mydriasis. The interval between the last such episode and the echocardiogram was more than 2 hours. 5. Repeat brain CT scans were indeed performed after evacuation of the extradural hematoma and revealed coinciding regression of the radiological features of the mass effect. As pointed out, 6 days later, his cardiac investigation were normal and his CT scan revealed only signs of cerebral contusion. 6. We agree with Dr. El-Menyar that left ventricular hypertrophy is a rather uncommon observation in acute cardiac decompensation and may, as observed in our patient, resolve after normalization of cardiac function; 7. Takotsubo or stress-induced cardiomyopathy or myocardial stunning is a clinical syndrome affecting predominantly postmenopausal women between the ages of 55-70. Although there is some clinically similarity to neurogenic stunned myocardium (our case) the precipitating component of acute severe emotional, psychological, or physical stress is the prominent feature. Furthermore, most of these patients have ST segment elevation in the ECG (87.5%) and ejection fractions, which are much higher than that observed in our patient.⁵ 8. The query on the parameters of left ventricular dysfunction is surprising. We clearly stated that his hemodynamic condition was monitored by PiCCO® values which were not added in detail because of space limitations. In our trauma intensive care unit

setting, PiCCO® monitoring is more reliable than central venous pressure or pulmonary capillary wedge pressure, and chest x-ray to assess cardiac function.

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