Traumatic cardiac arrest

To the Editor

I enjoyed reading Rahman et al's[1] case report on traumatic cardiac arrest. However, I am a little concerned that it might create some confusion among those who are not so familiar with the current resuscitation guidelines.

Firstly, there appear to be some internal inconsistencies within the report. The report describes ventricular tachycardia (VT) as confirmed in the ECG presented; the discussion describes it as ventricular fibrillation (VF). It is reported that the cardiac arrest and trauma teams were both available immediately when the patient arrived, however, in the next paragraph we are told that the cardiac arrest team was called to continue resuscitation only after VT was diagnosed, which was at least 15 minutes after arrival. Defibrillation was later described as 'early', which it clearly was not.

Secondly, there seems to be a misunderstanding of the definition of death. Death is an irreversible state, by definition. It is categorically not synonymous with cardiac arrest, and the patient was clearly not brought in 'dead on arrival'. Not only was his 'death' reversible, but he still had agonal respirations. No one should diagnose death in such a person. In fact, he arrived in a state of cardiac arrest from which, by God's grace, he was successfully resuscitated.

Thirdly, and most importantly, it appears that current resuscitation guidelines were not followed. The International Liaison Committee on Resuscitation (www.ilcor.org) produced consensus guidelines in 2010.[2] These guidelines are the basis for both European and American resuscitation algorithms, as used in Advanced Life Support courses throughout the world. Having established that the patient is in cardiac arrest, good quality cardiopulmonary resuscitation (CPR) with minimal interruption to compressions is essential. Assessment of the rhythm should occur as rapidly as possible; this can usually be achieved within less than a minute. It is difficult to understand why it took 15 minutes to diagnose VT in this patient; it suggests that rhythm recognition and defibrillation were not considered as urgently as the intubation and cervical collar that were being applied during that time. Furthermore, using a monophasic defibrillator, the initial shock should be at 360J, not 200J. Perhaps if the correct, higher charge were used initially in this case, it would not have been necessary to shock twice. Having then established 2-minute cycles of good CPR with 360J shocks as appropriate, it is indeed necessary to consider reversible causes of cardiac arrest. Traumatic causes would obviously be appropriate to consider in this case, however, the fundamentally reversible cause of this patient's cardiac arrest was VT, which needed defibrillation. Systematic consideration of hypovolemia, cardiac tamponade, or tension pneumothorax would all be reasonable - but only if the patient remained in cardiac arrest despite defibrillation. In short, this patient needed immediate recognition of his VT followed by defibrillation at 360J. The 15-minute delay to rhythm recognition following intubation and followed by a 200J shock is not good current practice.

Finally, the authors' suggestion that current guidelines for cardiac arrest in blunt trauma might have led to an unfortunate withholding of treatment for this patient betrays a failure to understand that the poor outcomes described are for those with non-shockable rhythms. This patient had a shockable rhythm, and I know of no guidelines that would withhold initial CPR and defibrillation from him.

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Reply from the Author

We wish to thank Dr. Cattermole for his interest in our paper on traumatic cardiac arrest.[1] We also appreciate his useful comments. We wish to respond to his comments.

There is no inconsistency in the presentation, that is, the patient had VT as indicated in the case report. The abbreviation under discussion should be VT not VF. As clearly stated in the case report, the cardiac arrest and trauma team were both available immediately when the patient arrived;, and the next paragraph in the report indicated the "medical team" was invited after VT was diagnosed.

Defibrillation was given as part of immediate resuscitation but the ECG showing VT was at 15 minutes. This was not meant to mean that defibrillation was carried out at 15 minutes.

The term "dead on arrival" was only used as part of introduction and not part of the case report. In the discussion, the difference between sudden cardiac death (SCD) and cardiac arrest (SCA) was made.[1] However, the use of SCD to describe both fatal and nonfatal cardiac arrest persist by convention.[3]

Though this patient was seen before the International Liaison Committee on Resuscitation Consensus Guideline in 2010[2] was published, even earlier guidelines in 2005[4] had emphasized early defibrillation and that was carried out in this patient. It was the ECG finding that was at 15 minutes. Although the current guideline recommends that when using monophasic defibrillator, the initial shock should be 360J, it is difficult to conclude that a higher charge would have necessarily prevented giving the shock twice. In UpTodate of December 2009 Tiamfook-Morgan and Pozner[5] concluded that their suggestion that defibrillation using the highest available energy (generally 200 to 360J with a biphasic defibrillator and 360J with monophasic defibrillator is based on grade 2C evidence). What this means is that it is a weak recommendation based on observation studies, and unsystematic clinical experience or from randomized, controlled trials with serious flaws. Any estimate of effect is uncertain.

As indicated earlier the patient presented was managed before the 2010 guideline was published. The 2005 guidelines[4] clearly states the shortcomings of some of the guidelines as follows: "As a result of the nature of resuscitation research few randomized control trials have been completed in humans. Many of the recommendations in 2005 American Health Association ACLS guidelines were made based on retrospective studies, animal studies, and expert consensus."

The essence of the paper is not to condemn any guideline but to remind the trauma team that patients with blunt trauma presenting with cardiac arrest may still have non-traumatic cause and resuscitation should be carried out bearing this in mind.

Once again thanks.

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Errata

In manuscript "Growth status of Saudi patients with cleft lip and palate" Saudi Medical Journal 2002; Vol. 23 (7): 823-827, the names of the author should have appeared as follows: AlBarakati SF, Alkofide EA.

In manuscript "The optimal dose of intrathecal sufentanil to be added to low-dose intrathecal ropivacaine during anesthesia for cesarean delivery" Saudi Medical Journal 2011; Vol. 32 (8): 855-857, the footer details should have appeared as follows:

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