



Advanced Trauma Life Support (ATLS) Tips to Be Kept In Mind

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Dear Editor,

The Advanced Trauma Life Support (ATLS) course for doctors was initially introduced in 1978 by the American College of Surgeons and was rapidly distributed worldwide and adopted by almost all the trauma centers. It was firstly based on the opinions and consensus view of the experts and specialists of trauma towards trauma management. During past decades, the ATLS guidelines evolved and improved based on the evidences provided from the studies. It is well established that improving the standards of care process would reduce mortality and morbidity in trauma systems [1]. In this regards ATLS subcommittee performs sequential editions to the guidelines based on expert opinion and select review of current literature [2]. However, the increasing international audience for the course and the recognition of the importance of evidence-based medicine fostered a need to update the revision process [3]. Although the ATLS is revised meticulously, however some points are less emphasized. In this short letter, we review some important parts of ATLS which should be kept in mind for trauma practice.

1. The first critical point which should be considered by the medical personnel at the first contact with a trauma patient should be an investigation of the patient for signs of life such as: breathing efforts, voluntary or involuntary body movements, reactive pupils to light and having palpable carotid or radial pulses. In cases where

these evaluations fail to show any signs of life, recording the electrical activity of heart should be taken in to consideration.

2. In the cases where clinical signs and symptoms propose the diagnosis of tension pneumothorax for a patient, ATLS guidelines have recommended that an angiocatheter or needle should be inserted to the chest cavity in the 2nd intercostal space at the mid-clavicular line, in order to deflate the air which is trapped in the pleural cavity. With respect to previous studies [4-6], in more than 50% of adults, the thickness of chest wall at the mentioned site (2nd intercostals space of mid-clavicular line) exceeds 3.5cm which is the maximum length of an angiocatheter. Therefore, when the above mentioned technique fails to deflate the air, the 5th intercostals space at the mid-axillary line would be a proper anatomic site for inserting a catheter or needle, regarding the fact that in over 90% of human adults the chest wall thickness in this site is less than 3.5cm, leading to higher success rate for urgent treatment of the pneumothorax.

3. Regarding the management of patients with chest trauma who have GCS less than 8, immediate airway maintenance is indicated by performing endotracheal intubation. An exception exists in cases where the patient is not apnic and primary evaluation of patient's breathing and circulation implies the existence of simple pneumothorax. In these cases, endotracheal intubation should be postponed,

regarding the fact that positive pressure ventilation (exerted by Umbo) would have a risk of inducing tension pneumothorax. Therefore in cases where existence of simple pneumothorax is suspected, a needle should be inserted in a proper anatomic site of chest wall in order to deflate the air which is trapped in pleural space. Maintaining air way by performing endotracheal intubation would be the next step and ultimately inserting a chest tube would be the gold standard treatment. Induction of tension pneumothorax is prevented if the patient is treated step by step in the manner which is mentioned above.

4. Considering the ATLS guideline, evaluation of the patients with chest trauma for existence of flail chest should be done during the primary survey, although the condition itself poses no immediate life threatening risks even if not treated emergently; therefore there would be no need for emergent therapeutic interventions, even if the diagnosis of flail chest is made only by clinical evaluations. On the other hand, with respect to previous studies [7], in many cases, the diagnosis of flail chest is not achievable only by performing physical examination in the first minutes of patient arrival and other diagnostic procedures such as: obtaining a chest X-ray and a chest CT scan would be needed in order to have a definite diagnosis. Thus, it is recommended that the evaluation of the patients with chest trauma for flail chest should be left for the secondary survey.

5. Regarding the trauma patients who have low levels of systemic blood pressure at the time of arrival to Emergency Department, it would be better to evaluate the patient in order to find possible sources of internal or external bleedings during the primary survey. In other words it is recommended that ATLS should have a clear statement regarding the order of diagnostic procedures in hypotensive patients which could be as follows, first step: evaluation of internal and external bleeding in chest, abdomen and pelvic cavity. Second step: performing radiography (CXR) and FAST as

soon as possible. Over all the above mentioned evaluations should take place after primary survey before starting the secondary survey.

6. If the patient was discovered to have unstable vital signs in the primary survey, inserting Naso-Gastric (NG) tubes and urinary catheters should be considered before performing secondary survey. Otherwise, placing NG tubes and urinary catheters is indicated based on finding of the secondary survey.

7. Overall, the type fluid therapy for the trauma patients with hemorrhagic shock is not clearly discussed in ATLS. Considering the current studies, IV infusion of large amount of fluids (more than 1.5-2 liters) is associated with higher rates of morbidity and mortality. There for, it is recommended that:

a. The total volume of fluid replacement should not be more than 2 liters.

b. In patients with class 3 hemorrhagic shock, Blood transfusion should be started after infusion of 2 liters of crystalloids.

c. In patients with class 4 hemorrhagic shock, administration of crystalloids and blood products should be started simultaneously as the fluid therapy of choice.

8. The medical history of the trauma patient is summarized only by AMPLE (Allergies; Medications; Past illness; Last Meal; Events or Environment) in ATLS guidelines with little or no focus on the patient's chief complaints, although it would be really important, providing helpful guides for purposeful management of the patient's problems. It is recommended that the AMPLE should be replaced by CAMPLE with the letter C indicating the patient's complaints such as: headache, chest pain, dyspnea, feeling of compression in chest, nausea, vomiting, abdominal pain, pain in extremities or any other unpleasant or abnormal feelings in any part of the patient's body.

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