

The level of knowledge of the advanced trauma life support protocol among nonspecialist doctors involved in trauma care in Enugu metropolis

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Abstract

Background: Trauma is one of the leading causes of mortality in developing countries. Nonspecialist doctors are the first caregivers to attend to trauma patients. Most nonspecialist doctors in Nigeria lack extra training in trauma care including the ATLS training for doctors.

Objectives: To determine the knowledge of the ATLS protocol among nonspecialist doctors involved in trauma care in Enugu, Nigeria.

Materials and Methods: We prepared and shared out questionnaires to the respondents, and later analyzed the information received using the SPSS 15.

Results: 65 out of 110 respondents (59.1%) filled and returned their questionnaires. 59 (90.8%) were males and 6 (9.2%) females. Their ages ranged from 29 to 47 years (35.6 ± 3.85 years) and they had been practicing for 1-16 years (mean 4.40 ± 3.540 years). 5 (7.7%) were medical officers while 60 (92.3%) were residents at various stages of training in different Surgical subspecialties. 41 or 63.1% rated their knowledge of the ATLS protocol as satisfactory. 22 (33.8%) demonstrated a satisfactory knowledge of ATLS. The three respondents (4.8%) who had undertaken a formal training in ATLS demonstrated excellent knowledge of ATLS. All believed that training in the protocol would be beneficial in their career.

Conclusion: There is a poor knowledge of ATLS among nonspecialist doctors involved in trauma care in Enugu, Nigeria. ATLS training should be adopted by the hospitals involved in the training of doctors and should become a condition to employ surgery residents.

Key words: Knowledge, non-specialist, trauma

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Introduction

Trauma is recognized as a surgical disease^[1] and accounts for 12% of the total disease burden worldwide.^[2] It is among the leading cause of mortality the world-over especially in West Africa.^[3]

Advanced trauma life support (ATLS) is a protocol for management of acute trauma victims. It was devised in 1976 by an American Orthopaedic surgeon, James Styner and in 1980 it was adopted by the American College of Surgeons Committee on Trauma.^[4]

It is now widely accepted as the standard protocol for initial assessment and treatment of acute trauma victims.^[4]

ATLS is based on the idea that the greatest threat to life should be treated first; the lack of a definitive diagnosis should never prevent the application of an indicated treatment and a detailed history is not essential to begin the evaluation and treatment of a patient with acute injuries.^[1] It has been adopted in many countries in the world, but not yet in Nigeria.

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Researchers have discovered that basic medical training alone may not prepare doctors adequately for emergencies^[5] as the knowledge of these doctors in basic trauma life support (BTLS), advanced trauma life support and advanced cardiac life support (ACLS) is insufficient.^[6] The content of the medical curriculum on these aspects is not adequate.^[5,6]

Extra trainings in BTLS, ATLS, and ACLS programs prepare both doctors and paramedics on priorities in the care of the injured.^[1]

It has also been documented that ATLS improves standards of care of injured patients.^[7-10] ATLS was therefore advocated as being necessary for all hospital staff^[5,10,11] and necessary to employ senior house officers in trauma.^[7,12-14]

In Nigeria, it is observed that many doctors who are the first caregivers to injured patients are not well-grounded in managing acute trauma victims and do not always follow the proper order of priorities in the care of injured. Most often they are not composed and organized in their method.

This is mainly because they have only basic medical training. There is usually no form of organized training for medical doctors after their graduation to equip them with the knowledge and skills to care for injured patients.

The aim of this study is to assess the level of knowledge of ATLS among nonspecialist doctors involved in trauma care in Enugu.

Materials and Methods

This is a descriptive cross-sectional study conducted among nonspecialist doctors who are involved in the care of trauma victims in Enugu, Nigeria.

This group of doctors included residents at various levels of residency training and medical officers at different cadres. They all practice in Enugu metropolis and its environs.

The residency program in Nigeria is organized at two levels, junior and senior residency. The junior residency is prespecialist training while senior residency is specialist training. The minimum level to qualify for examination at each level is 24 months.

The study was conducted in both private and government owned hospitals including primary, secondary and tertiary institutions.

We designed a semi-structured questionnaire to cover various levels of knowledge of the stages of ATLS and the components

of primary survey which is actually what covers the emergency management of severe trauma. Assessment criteria were included in the questionnaire and the doctor is made to rate his or her level of knowledge in the end. The assessment grading of the level of knowledge is as follows [Table 1].

We gave out the questionnaires to the nonspecialist doctors involved in trauma care. The sample was drawn from resident doctors in two tertiary hospitals in Enugu, and the medical officers from the same institutions and the private hospitals.

Recruitment was consecutive until the target population was covered.

The sample size was determined using a confidence level of 80% and 10% precision. The minimum sample size required for the study was 40. One hundred and ten questionnaires were given out to this group of doctors who are often the first or second—on call in the trauma units of their hospitals. We tried to make provision for those who would not return their questionnaires.

The questionnaires that were properly filled and returned were then analyzed by SPSS 15 to determine the age of the respondents, their level of training, the duration of practice and their level of knowledge of the parameters involved in ATLS.

We then, assessed the respondents' responses on the parameters of ATLS protocol and rated them using the set criteria.

The study has some limitations which should rather stimulate further research in our environment.

Many doctors, especially medical officers refused to fill the questionnaires on the basis of inadequate knowledge. This reduced the number of medical officers available for the comparison with doctors in residency training.

There are no other established and organized trainings on trauma care in our environment for us to compare them with the ATLS.

Table 1: Criteria for rating level of knowledge of ATLS

None	No knowledge of any of the stages of ATLS and components of primary survey
Poor	Knowledge of the main stages of ATLS+or – insignificant knowledge of components of primary survey
Satisfactory	Knowledge of main stages of ATLS+ significant knowledge of components of primary survey
High	Knowledge of all stages of ATLS and almost all the components of primary survey
Excellent	Knowledge of all the stages of ATLS and all the components of primary survey

There is no study in our environment on newly graduated doctors to find out the extent of inadequacy of basic medical training in equipping medical doctors for emergencies.

Results

Sixty five out of the 110 questionnaires given out were adequately filled and returned.

The age of the respondents was 29-47 years, with a mean age of 35.6 ± 3.85 years. 59 of them (90.8%) were males and 6 (9.2%) females. They had been in trauma care for 0.5-16 years (4.40 ± 3.54 years).

Among the respondents, 37 (56.9%) were junior residents and 23 (35.4%) senior residents in the fellowship programs of the National Postgraduate Medical College of Nigeria (NPMCN) and the West African College of Surgeons (WACS). The remaining 5 (7.7%) were medical officers.

Seventeen senior residents, 21 junior residents, and 3 medical officers (MOs), a total of 41 (63.1%) respondents rated their knowledge of ATLS protocols as satisfactory. 12 (21.5%) respondents; 1 senior resident, 9 junior residents, 2 medical officers rated their knowledge as poor. 6 doctors, 4 junior and 2 senior residents rated their knowledge as high. 3 senior residents and 1 junior resident, (4 doctors) rated their knowledge as excellent. 2 junior residents rated themselves as having no knowledge of ATLS.

Three of the medical officers in the study rated their knowledge as satisfactory while the other two rated themselves poor [Table 2].

When we reviewed their answers on the stages of ATLS and the components of the primary survey, all the medical officers in the study did poorly. 17 junior residents and 4 senior residents also were poor in their responses. 15 junior residents and 7 senior residents were satisfactory; 4 junior residents and 8 senior residents had a high knowledge; while 1 junior resident and 4 senior residents showed excellent knowledge [Table 3].

The respondents' assessment of their knowledge of the ATLS did not correspond to how well they answered basic questions on the protocol. All the medical officers had poor knowledge from our rating, but more than half of them had

rated their knowledge as satisfactory. More than half of the junior residents who rated their knowledge as satisfactory were rather poor on our scale, but senior residents who rated their knowledge as high actually demonstrated a high knowledge. The senior residents who had gone through a formal ATLS training demonstrated an excellent knowledge.

One respondent who rated his knowledge as none had satisfactory knowledge of ATLS. Of the 4 residents who rated their knowledge as excellent, three were actually excellent in our rating also and these were the senior residents who have had ATLS training, the junior resident who rated himself as excellent actually demonstrated poor knowledge.

64 (98.46%) agreed the ATLS training would be beneficial to their trauma care, while 1 (1.54%) respondent had no opinion.

Discussion

ATLS has become the standard of care for injured patients especially during the golden hour. The golden hour is credited to the late Dr R Adams Cowley. It was derived from the French World War 1 data which showed an increasing mortality with the passage of time following trauma.^[13]

However, the golden hour currently refers to the time period lasting about one to four hours following traumatic injury sustained by a casualty during which there is the highest likelihood that prompt medical emergency treatment will prevent death. This period matches the second peak of the trimodal death distribution following trauma and is the target period of ATLS.^[11]

Organized ATLS trainings are adopted in many countries as a condition for the employment of surgical residents or doctors into the trauma units. These trainings provide a consistently high standard of improvement in knowledge and therefore, care of the injured.^[16]

In our nation, this is not the case. Doctors are employed with no extra training in ATLS or any other trauma-care course. Meanwhile, it has been documented that the basic training in medical schools is not enough and does not prepare clinicians adequately for emergencies.^[5]

In our study, the respondents were mainly males which

Table 2: Respondents rating of their knowledge of the ATLS protocol

	Level of knowledge					Total
	Excellent	High	Satisfactory	Poor	None	
Practice level						
MOs	0	0	3	2	0	5
Junior resident	1	4	21	9	2	37
Senior Resident	3	2	17	1	0	23
Total	4	6	41	12	2	65

Table 3: Our rating of respondents' knowledge of the ATLS protocol

	Level of knowledge					Total
	Excellent	High	Satisfactory	Poor	None	
Practice level						
MOs	0	0	0	5	0	5
Junior resident	1	4	15	17	0	37
Senior resident	4	8	7	4	0	23
Total	5	12	22	26	0	65

support the worldwide finding that surgery is a male-dominated specialty.^[14]

Respondents in our study rated their knowledge of ATLS higher than the level of knowledge they demonstrated. This suggests that many did not appreciate the inadequacies in their knowledge of a global protocol which has been demonstrated to improve survival of trauma victims. However, no medically qualified doctor is entirely lacking in the knowledge of ATLS as those who rated their knowledge as none or poor, still demonstrated satisfactory knowledge of the protocol.

Generally, those in residency training demonstrated better awareness of the stages and the components of the primary survey. This level of knowledge also increased as the period of training increased as the senior residents demonstrated better knowledge of the protocol than the junior residents.

The senior residents who had undergone a formal ATLS training demonstrated excellent knowledge of the protocol. This confirms the findings of Ali *et al.* that basic medical training is inadequate for trauma care^[8] and that ATLS training improves knowledge of the clinician and therefore the care he or she gives to the injured.^[16]

Formal ATLS trainings or their equivalent, already being done in more than fifty countries worldwide, should be organized for doctors, especially those with only basic medical training, who will care for trauma victims.

Conclusion and Recommendations

The study demonstrates inadequate knowledge of ATLS among nonspecialist doctors involved in trauma care in our locality.

Further trainings are therefore required to improve the level of knowledge of ATLS in this group as medical personnel who do not appreciate the priorities in treatment of the injured will have poor patient outcome.

This study should also be carried out with newly graduated doctors to find out the extent of inadequacy of basic medical training in equipping medical doctors for emergencies. This will correctly determine the level of knowledge of ATLS among doctors who have only the basic training. Policy

makers will then determine the inadequacies in the medical curriculum and make appropriate corrections.

Doctors should be trained in ATLS before employment, or as early as possible in their service life, especially if they will be involved in caring for trauma victims. This will increase knowledge and reduce panic among doctors involved in trauma care. The employing hospitals could arrange for the trainings to ease the cost burden and also bring it closer to those interested.

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