

Detailed forensic research is needed to establish the immediate cause of death. From this, adequate first aid practices can be deduced to ensure efficient and effective bystander first aid immediately after an road traffic crash.

Keywords: bystander; first aid; incident management (IM); the Netherlands; road traffic crashes; traffic

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(55) Rural Emergency Medicine in Nigeria: A Need for Change

A. Bafor, E. Okparavero, E. Ebikhamenor

University of Benin Teaching Hospital, Benin City, Nigeria

At the turn of the Century, the status of rural emergency medicine in Nigeria virtually was non-existent. This significantly contributed to the high mortality and morbidity rates on Nigerian roads. What existed at best, was a scoop-and-run policy with its own peculiar problems. Within the last decade, the growing need to restructure the organized trauma sector has become more evident. This has led to the establishment of governmental and non-governmental organizations to address these problems.

This paper reviews the status of rural emergency medicine in Nigeria. It highlights some of the problems and peculiarities in this area of trauma care and propose how these problems can be resolved.

Keywords: morbidity; mortality; Nigeria; non-governmental organizations; rural emergency medicine

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(56) Systematic Review of Biphasic Versus Monophasic Waveforms for Transthoracic Defibrillation in Out-of-Hospital Cardiac Arrest

A. Sen,¹ S. Faddy,² R. Cunningham,³ P. Jennings⁴

1. Hope Hospital, Manchester, United Kingdom
2. St. Vincent's Hospital, Sydney, Australia
3. Scottish Ambulance Service, Scotland, United Kingdom
4. Rural Ambulance Service, Victoria, Australia

Introduction: Transthoracic defibrillation is a potential life-saving treatment for patients with ventricular fibrillation (VF) and hemodynamically unstable ventricular tachycardia (VT). In recent years, the use of biphasic waveforms for defibrillation has become more common than the use of monophasic waveforms for defibrillation. Biphasic waveforms are characterized by an initial positive current flow followed by a reversal to a negative current flow. Clinical trials of internal defibrillation and transthoracic defibrillation of short-duration arrhythmias have demonstrated the superiority of biphasic waveforms over monophasic. Biphasic waveforms are increasingly being used for transthoracic defibrillation of long-duration, out-of-hospital cardiac arrest.

Objective: The objective of this study is to assess the effects of biphasic waveforms compared to monophasic waveforms for defibrillation of patients experiencing out-of-hospital cardiac arrest.

Methods: A search of the Cochrane Central Register of Controlled Trials (The Cochrane Library Issue 4, 2006),

MEDLINE (January 1990 to July 2006), and EMBASE (January 1990 to July 2006) will be conducted. Additional papers will be sought through hand-searching of relevant conference proceedings and reference lists of articles. The selection criteria will be based on randomized, controlled trials comparing biphasic and monophasic waveforms in out-of-hospital cardiac arrest. The primary outcome is the return of spontaneous circulation. Secondary outcomes include: (1) first shock efficacy; (2) efficacy of up to three shocks; (3) delivered current; (4) adverse outcomes; and (5) survival to hospital discharge. Two reviewers will independently assess the study quality and abstract data using a standardized data collection form. Disagreement will be resolved by consensus. Data abstraction will include information on adverse outcomes.

Results: The work is ongoing and results will be presented at the World Congress on Disaster and Emergency Medicine (WCDEM) 2007.

Keywords: biphasic waveforms; cardiac arrest; monophasic waveforms; out-of-hospital; transthoracic defibrillation

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(57) Carotid-Pulse-Check Performance by Soldiers: Effects of Cardiopulmonary Resuscitation Training and Effects of Physical or Combined Physical/Psychological Stress

L.A. Schwarte, P. Schober

University Hospital Duesseldorf, Duesseldorf, Germany

Background: Currently, the carotid-pulse-check is restricted by the International Liaison Committee on Resuscitation/ERC Guidelines for health professionals, mainly due to the poor performance by non-health professionals.¹ It remains controversial whether soldiers undergoing cardiopulmonary resuscitation (CPR) training should apply carotid-pulse-check, but this decision may be affected by the trainability and performance of the soldiers. Therefore, the impact of CPR training and stress (physical and psychological) on the carotid-pulse-check performance of soldiers was tested.

Methods: Soldiers (n = 86) received standardized, theoretical, CPR instructions, including a demonstration of the carotid-pulse-check technique. Later, the soldiers performed carotid-pulse-check on a supine, normotensive, normofrequent, person under each of five conditions (A-E): Before (A) and after (B) practical ("hands-on") CPR-training; before (C) and after (D) defined physical exercise; and (E) under combined physical/psychological stress. Data are provided as means \pm em, with significance set at $p < 0.05$.

Results: The time required for carotid-pulse-check significantly decreased from solely theoretical training (A, 9.7 \pm 1.0 seconds) to practical training (B, 7.7 \pm 0.7 seconds). In contrast, the carotid-pulse-check-time significantly increased from rest-condition (C) to physical exercise condition (D, 9.3 \pm 1.2 seconds). Surprisingly, the shortest time required for carotid-pulse-check was achieved under combined physical/psychological stress (E, 5.0 \pm 0.4 seconds).

Conclusions: Standardized resuscitation training significantly improved practical resuscitation skills, (e.g., the carotid-pulse-check to accepted performance levels).^{1,2} Although

significant improvement from theoretical to practical training was demonstrated, this benefit is lost under conditions causing physical stress. Interestingly, the best performance occurred under the conditions of combined physical/psychological stress.

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Keywords: cardiopulmonary resuscitation; carotid-pulse-check; emergency medical services; soldiers; stress; training

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(58) Survey of Local Emergency Medical Services Missions in Kashan during the Six-Month Period from 21 March–22 September 2006

M. Mahdian; A. Shojaee; A. Aliasgharzadeh; A. Rahati
Kashan University of Medical Sciences, Kashan, Iran

Introduction: Kashan is a city located in the province of Esfahan, Iran located between the city of Esfahan and Tehran, the capital. It has an area of 9,617 km², and a population of 270,000 persons. The 115 emergency medical services (EMS) systems in Kashan have three urban (six ambulances) and six road (seven ambulances) stations. Ambulances are staffed by two crew members trained in rescue, stabilization, transport, and basic care of traumatic and medical emergencies.

Objective: The objective of this study was to describe the current state of EMS in Kashan.

Methods: In a retrospective descriptive study, patients treated by the 115 EMS during a six-month period were surveyed using a review of command center records. Data included: (1) total missions performed (urban and road); (2) type of mission (trauma or medical emergency); and (3) response time (RT), interval between call receipt and arrival on-scene. Descriptive statistics were used to analyze the results.

Results: Of the 5,616 missions during the study period, 4,619 (82.2%) were urban and 997 (17.8%) were road missions. Among urban missions, 2,603 cases (56.3%) were due to trauma, and 2,016 (43.7) were medical emergencies. A total of 57.1% of urban trauma emergencies and 86.7% of road missions were due to motor vehicle crashes. The mean RT for urban and road missions were 4.412.16 min and 10.446.37 min respectively.

Conclusions: The results of this study indicate motor vehicle crashes are a major problem in Kashan. The EMS response time is acceptable in urban and road area but unfortunately we have no any rural services and must improve our services in rural area.

Keywords: emergency medical services (EMS); Iran

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(59) Outcome of Prehospital Cardiac Arrest Cases Treated by the National Center for Emergency Medical Services (EKAV) during 2006 in Heraklion, Crete, Greece

P. Malliotakis;¹ M. Zeaki;² M. Zervopoulos;²
D. Vourvachakis;² E. Kontoudaki;² E. Matheaki²

1. Heraklion, Greece

2. National Center for Emergency Medical Services, Heraklion, Heraklion, Greece

Objectives: The aim of this study was to review of all of the cases of prehospital cardiac arrest treated by a hospital's emergency medical services (EMS) personnel during a 10-month period from January through October 2006.

Methods: Retrospective analysis was conducted of prospectively collected data, including: (1) patient demographics; (2) arrest rhythm; (3) duration of arrest; (4) time to cardiopulmonary resuscitation (CPR) initiation; (5) time to first defibrillation; (6) time to Return of Spontaneous Circulation (ROSC); (7) status at hospital admission; and (8) status at hospital discharge.

Results: From January through October 2006, 67 cases of prehospital cardiac arrest were treated by the EMS personnel. The mean value for the age was 59 ± 12 years, 67% were male. Of the arrest rhythms: (1) 62.7% were asystole; (2) 23.9% were ventricular fibrillation; (3) 13.4% ventricular tachycardia. Of the 67 cases of prehospital cardiac arrest, 23 (34.3%) patients were alive at hospital admission (survivors). For these survivors, the mean time to CPR initiation and mean time to first defibrillation were 6 ± 4 minutes and 15 ± 12 minutes respectively, whereas the corresponding values for non-survivors were 9 ± 5 and 1,914 minutes. For the survivors, the mean time to ROSC was 17 minutes (range: 1–62 minutes). Only 30.4% of patients alive at hospital admission were discharged alive, with a mean time to CPR initiation and mean time to first defibrillation of 3 ± 4 minutes and 4 ± 4 minutes respectively.

Conclusions: During this 10-month period, approximately one out of three cases of prehospital cardiac arrest arrived at the hospital alive; however, only one of 10 cases was still alive at hospital discharge. Timely initiation of effective CPR and defibrillation (whenever indicated) are the main aspects that must be targeted in order to improve survival rates in pre-hospital cardiac arrest.

Keywords: cardiac arrest; cardiopulmonary resuscitation (CPR); emergency medicine services; personnel; prehospital

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(60) Aeromedical Transportation in Japan—Recent Progress

T.O. Okumura

Saga University, Chuo-City, Fukuoka Japan

The efficacy of air medical transport for saving the lives of injured soldiers first was realized during the Korean War in the 1950s. Therefore, it is interesting that the development of a national air medical transport service in Japan only occurred in 1999. Since then, the Dr-Heli system has been used to transport experienced emergency physicians and nurses from advanced emergency medical centers to the