

Rapid Defibrillation: A Comparison of Prehospital Cardiac Arrest Victim Survival Rates

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Introduction: In patients who suffer out-of-hospital cardiac arrest, the time from collapse to defibrillation is the single most important determinate that affects survival to hospital discharge. The purpose of this study was to compare the survival rates of cardiac arrest victims within an institution that has a rapid defibrillation program to those of its own urban community, with a tiered EMS system.

Methods: Logistic regression analysis of a retrospective data series (n = 23), and comparative analysis to a second retrospective data series (n = 724) were gathered for the study period September 1994 to September 1999. The first series consisted of all patients at Casino Windsor Ltd. who suffered cardiac arrest and the data abstracted included: (1) age, (2) gender, (3) death/survival (neurologically intact discharge), (4) presenting rhythm (VF, VT, other), (5) time of collapse, (6) time to security arrival, (7) time to CPR prior to defibrillation (if applicable), (8) time to nurse arrival, (9) time to defibrillation, and (10) time to return of spontaneous circulation (if any). Significantly, all arrests within this series were witnessed by the surveillance camera system, allowing time of collapse to be accurately determined rather than estimated. These data were compared on the basis of similar events, times, and intervals to a second series that consisted of all patients in the greater Windsor area who suffered cardiac arrest. This series was based upon the Ontario Prehospital Advanced Life Support (OPALS).¹ The study database was coordinated by the Clinical Epidemiology Unit of the Ottawa Hospital, University of Ottawa.

Results: The Casino Windsor Ltd had 23 cardiac arrests, all were witnessed, 13 (56.5%) were male, 10 (43.5%) were female. The average age was 61.1 years, average of the time to defibrillation was 7.7 minutes from the collapse of patient, mean value of times of EMS to patient's side 13.3 minutes of collapse, and VF/VT was the initial rhythm 91% of the time. Fifteen were discharged alive from hospital (65% survival).

The Greater Windsor Study Area had 668 out-of-hospital cardiac arrests: 365 (54.6%) were witnessed; 303 (45.4%) were unwitnessed; 410 (61.4%) were male, 258 (38.6%) were female. VF/VT was the initial rhythm in 34.3%. Thirty-seven were discharged alive from hospital (5.5% survival).

Conclusion: PAD Programs should be extended to any venue with large numbers of adults, and areas with difficult medical access. Device availability has proven to dramatically increase survival rates.

Reference

1. Ontario Prehospital Advanced Life Support Study (O.P.A.L.S.), Ottawa Civic Hospital, Clinical Epidemiology Unit, Ottawa ON., Phase IIIR Table,

7/19/00.

Key words: cardiac arrest; cardiopulmonary resuscitation (CPR); rapid; defibrillation; out-of-hospital
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EMS Under Fire: Activities during the Intifada—October 2000 to January 2001

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Introduction: For the past 3 months, MDA treated 652 wounded persons in 253 Intifada events. Activities were conducted in hostile environment: 5 MDA crew members injured; 53 ambulances damaged; one was burned, and the rest stoned.

Results: Debriefing of treatments and evacuation covered 49 events comprising:

- 1) Injured, 194: 52 (30%), urgent, unstable; 18 (10%), urgent stable; 79 (45.5%), nonurgent; 25 (14.5%), pronounced dead on scene
 - 2) Gun shot wounds, 60%; stabbing, 8%; explosions, 17%; and the rest MVA
 - 3) Wounds distribution: Head and neck, 12.5; torso, 26%; extremities, 30%; burns, 9%; multitrauma, 18%
- The military medical corps was involved in 21%.

Although most events were in rural areas, the average response time was 13 minutes; field treatment (including extrication time and delays due to environmental dangers) 22 minutes; and average time of transportation to hospitals, 18 minutes. Emergency lifesaving procedures in 70 urgent wounded: Intubation/ coniotomy, 36; Chest drain/needle application, 18; Tourniquet for massive bleeding, 10.

Conclusions: Our main conclusions are: National EMS active and professional in every day activities (300,000, BLS; 90,000 ALS per year) operates equally well in emergency situations. The deployment and organization of MDA enable it to respond well to unexpected emergencies in hazardous locations. The professional skills in trauma treatment (as per PHTLS) of MDA staff at all levels saved the lives of many Intifada victims.

Key words: emergency medical services; Intifada; Israel; trauma; wounds

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CT in Diagnosis and Management of Patients with an Acute Abdomen

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Objective: To emphasize the importance of CT in the diagnosis and management of patients with acute abdomen. Most of these cases were managed with the clinical findings and abdominal ultrasound, but when the diagnosis was unknown or more information was required, we performed a CT of the abdomen.

Methods: We retrospectively reviewed 403 CT of acute abdomen between January 1990 and August 2000. A final diagnosis was made by surgery. Early CT imaging was obtained within 6 hours after patient arrival.

Results: 403 patients with an acute abdomen were identified, and the underlying causes were as follows: diverticulitis in 87 (21.6%); appendicitis in 73 (18.1%); bowel obstruction in 63 (15.6%); gastrointestinal perforation in 35 (8.7%); acute cholecystitis in 31 (7.6%); pelvic inflammatory disease, 31 (7.6%); necrotizing acute pancreatitis, 23 (5.7%); ileus in 23 (5.7%); cancer, 13 (3.2%); ischemic bowel, 10 (2.5%); aortic aneurysm rupture, 8 (2%); and hemorrhage, 6 (1.4%). These findings are similar to other studies.

Conclusion: CT is a useful tool to provide valuable information for the diagnosis of the cause of acute abdomen. It allows a rapid, cost-effective evaluation of these patients. CT represents a useful tool in the decision making for surgical or nonsurgical management.

Key words: acute abdomen; computerized tomography (CAT); diagnosis; differential; surgery

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Relationship of Pancreatic and Peripancreatic Fat Necrosis to Organ Failure in Acute Pancreatitis

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Objective: A prospective study to determine the relationship of pancreatic and peripancreatic fat necrosis to organ failure in acute pancreatitis.

Methods: Fifty-six patients out of 275 (20.4%) with necrotizing pancreatitis from 1990 to 1999 were reviewed. Pancreatic necrosis was identified by characteristic findings on dynamic contrast-enhanced computerized tomography scan. Dysfunction was defined in accordance with the Atlanta symposium. We performed a univariate and multivariate statistical study with lineal discriminant analysis.

Results: The overall mortality was 17/275 (6.2%). Surgical treatment 24/275 (8.8%). Organ failure was present in 76.8% of 56 patients. There was statistically significant difference in the prevalence of organ failure in pancreatic necrosis compared with interstitial pancreatitis ($p < 0.01$). The pancreatic head was affected in 9/275 (3.3%), body in 9/275 (18.97%), and the tail in 9/275 (10.2%). 5% had more than 50% of pancreas necrosed. 73/275 (26.5%) patients had peripancreatic fat necrosis.

Patients with increased amounts of necrosis did not have an increased prevalence of organ failure or infected necrosis. The anatomical site also did not correlate with overall clinical outcome. Patients with organ failure had an increased morbidity and mortality.

Conclusion: CT necrosis is not an indication for surgery or mortality. CT imaging helps to identify early, those patients who should be monitored closely to expedite the detection and treatment of complication.

Key words: computerized tomography; multiorgan system failure; necrosis; pancreatitis; peripancreatic fat

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A Drill as Part of the Training System: Training Hospital Staff to Cope with a Chemical Mass Casualty Event

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Since chemical weapons and mass destruction events have a potentially catastrophic effect on civilization, all of the hospitals in Israel are committed by the Ministry of Health and the Medical Corp of the Israeli Defense Forces to prepare for the administration of optimal medical services for a large number of casualties. Successful coping mechanisms of the medical staff for such treatment necessitates special organization based on 5 phases: (1) establishing standing orders and instructions, (2) expansion of facilities and pre-designated admitting sites, (3) designation of the hospital staff to the admitting sites and creation of special roles, (4) training programs to assure capabilities and skill performance of the staff, and (5) participating in drills.

These drills, which take place on an annual basis, are a crucial part of the training program. They simulate a realistic scenario, which requires the hospital to allocate the necessary staff (approximately 1,500) and equipment, update the instructions, the standing orders, and implement acquired knowledge. Videos recorded during these drills become a visual educational aid for future training, and even more importantly, for learning relevant lessons from the mistakes. Preparedness for a drill, is a long and complicated procedure that demands a substantial amount of time and resources. In this presentation, we would like to present our model of preparedness for a drill, step-by-step, from the moment we receive an announcement of a drill until the debriefing meetings. "War Games" [drills] are a very important part in the training program aimed to ensure the ongoing preparedness and alertness of the medical staff.

Key words: chemical weapons; disasters; drills; exercises; expenses; games; planning; preparedness; resources; standing orders; training; weapons of mass destruction

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Medical Opportunity of the Resort to Emergency Wards in the Auvergne

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The medical service of the National State Health Insurance Office in the Auvergne, within the context of its mission determined by law, evaluated the medical opportunity of patients to use the 15 emergency wards of the region. A pragmatic method, based on joint opinions of doctors of the medical service and hospital section heads, indicated that a high percentage of patients—18%—who used the service did not need it. In most cases, these patients are rather young adults suffering from harmless diseases that can be treated by a general practitioner, or the elderly who need to be taken in care structures for health care and social welfare.

This overuse of emergency wards for nonemergency