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INTRODUCTION

Cardiac arrest is characterized by abrupt cessation of mechanical activity of the heart and therefore loss of spontaneous and effective circulation. The most common electrical mechanism of failure is Ventricular Fibrillation (VF), which accounts for between 65% and 80% of episodes of cardiac arrest. Pulseless electrical activities **(PEA)** (previously termed electromechanical dissociation) and asystole account for between 20% and 30% of identifiable episodes ***(Niemann, 1992).***

In more than 80% of the patients who present with cardiac arrest, underlying heart disease has been previously identified. Coronary atherosclerosis accounts for approximately 80% of fatal events resulting from heart disease. However, only 50% of such patients have evidence of acute myocardial infarction ***(Whitaker et al., 1989)***.

Noncardiac causes account for approximately 20% of all cardiac arrests. These are predominantly due to failure of pulmonary gas exchange. Accordingly, cardiac arrest may supervene in cases of drowning, smoke inhalation, sedative or narcotic overdose, pulmonary embolism, cerebrovascular accidents, or CNS injury and electric shock. In such instances, it is failure of ventilation that typically ushers in cardiac arrest ***(Joseph et al., 2001).***

Cardiac arrest is characterized by loss of consciousness in which the victim is not aroused by vigorous stimulation and in the absence of palpable peripheral arterial pulses. However, palpation of peripheral pulses may not be reliable***.*** Central nervous system hypoxia may account for irregular respiration, including gasping ***(Clarck et al., 1991) and (Omato, 1993).***

The ECG most often confirms VF and less often, ventricular tachycardia, asystole, or agonal ventricular complexes. Pulseless supraventricular rhythms are more likely when circulatory shock is due to hypovolemia or mechanical defects of the circulation such as pericardial tamponade, tension pneumothorax, or pulmonary embolism rather than to primary heart disease ***(Weil et al., 1992).***

Early access with presentation of cardiac arrest is contingent on early recognition of the urgency of the presenting symptoms and signs. These signs and symptoms include chest pain, shortness of breath, and syncope. Early recognition prompts early activation of the emergency medical system ***(Cummins et al., 1991)***.

Early basic life support includes rescue breathing and precordial compression provided by one or two lay persons or by rescue personnel categorized as emergency medical technicians. Basic life support is for temporary support of ventilation and circulation to maintain cardiac and cerebral viability before more definitive care by professionally qualified medical, nursing, or paramedical personnel. The outcome of **CPR** is unequivocally improved if basic life support is maintained before the arrival of advanced life support providers ***(Joseph et al., 2001).***

Accordingly, early electrical defibrillation is currently viewed as the most lively to improve the outcome of cardiac arrest. When defibrillation is instituted within 3 minutes, a majority of victims of VF are resuscitated and more than one third are discharged alive from the hospital ***(Weaver, et al., 1986).***

However, when external counter shock is delayed for more than 10 minutes, restoration of meaningful life is very remote; Defibrillation at the earliest time is therefore the most critical, for successful resuscitation in conjunction with basic life support ***(White, 1997***).

The use of automated external defibrillators **(AEDs)** by lay providers in this setting has been strongly recommended by the American Heart Association and the initial experiences have been encouraging ***(Gliner et al., 1998).***

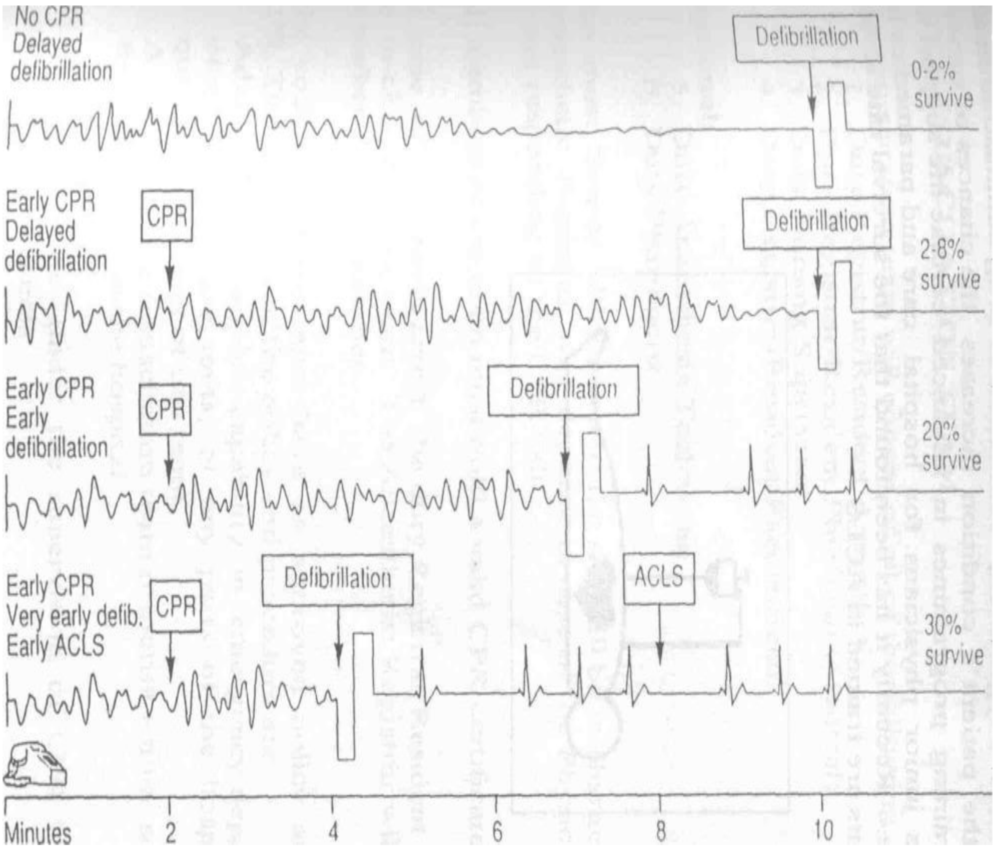

Figure (1): Survival rates (***Eisenberg et al., 1990).***

INTRODUCTION

ASSESMENT

OF

OUTCOME

AFTER

CARDIOPULMONARY

RESUSCITATION

ASSESMENT OF OUTCOME AFTER RESUSCITATION

Patients who survive critical illness are at risk for permanent physical, functional, emotional, and neurocognitive deficits, of which some or all may contribute to decreased health-related quality of life **(HRQL).** The reasons for this late morbidity after **ICU** care are multifactor and include but are not limited to the following: **(1)** nature of and treatment for the critical illness**; (2)** multiple-organ-dysfunction syndrome and hypoxemia; **(3)** physiologic and emotional stress in the **ICU** related to the illness itself, sleep fragmentation, psychoactive medications, and impaired drug metabolism owing to simultaneous administration of multiple medications; and (**4)** prolonged immobility and long ICU stay ***(Jesse et al., 2005)***.

Patients with the acute respiratory distress syndrome (ARDS) represent some of the most complex, highest-acuity, and long-stay ICU patients. ARDS is manifested by acute lung injury and severe hypoxemic respiratory failure ***(Gross et al., 2003)***.

ARDS is associated with a variety of insults, including, pneumonia, sepsis, trauma, massive transfusion, and other medical/surgical conditions. It is a systemic illness involving inflammatory and coagulopathic disturbances that may induce dysfunction of multiple organ systems, including skeletal muscle and the peripheral and central nervous systems ***(Ranieri et al., 2000).***

Because of the significant potential for morbidity, ARDS patients have been the focus in long-term outcome studies in survivors of critical illness. We are in the early stages of understanding the long-term impact of ARDS on physical, emotional, and cognitive functioning and how each contributes to the patients' HRQL. Most studies in ARDS survivors have focused on 6- to 12-month outcomes, and there is limited information on morbidity beyond this time point. Comprehensive 5- and 10-year follow-up data are not available for ARDS patients, and it is unclear whether all survivors of critical illness even with a severe episode will suffer from the same morbidity as observed in ARDS survivors. Despite these limitations, the ARDS survivor data are some of the most complete long-term outcome data available and represent the current state of the art in the critical care outcomes literature. As such, they will form the primary basis for this review ***(Imai et al., 2003)***

HRQL can be defined as a set of causally linked dimensions of health, including biologic/physiologic, mental, physical, social function, cognitive, and health perception. Measures of HRQL assess how disease and its treatment are related to physical, social, emotional, or cognitive functioning. HRQL has emerged as an important measure of recovery from a variety of disease .states, including critical illness, and has been used to evaluate patient-centered outcomes ***(Weinert et al. 1997)***.

The premorbid functional status of the patient and the etiology of the critical illness and its outcome represent important determinants of reported HRQL. Trauma patients with brain injury but normal cognitive function and intact social and work functioning reported a higher quality of life than trauma patients who were unemployed and had cognitive impairment. Critically ill multiple trauma survivors experience decreased quality of life associated with cognitive impairments and decreased income***.*** Elderly patients (>70 years) hospitalized in the ICU more than 30 days reported decreased physical functioning and poorer health and memory, but most were still functionally independent ***(Montuclard et al., 2000)***.

Survivors of sepsis***.***and prolonged mechanical ventilatory support (mean of 45 days) had compromised physical function, and the degree of dysfunction was related to premorbid functional status and the underlying disease (***Chatila et al., 2001).***

ARDS survivors had abnormal pulmonary function associated with decreased health-related quality of life 1 year following hospital discharge***.*** There is Ischemic nerve injury secondary to a disturbance in the microcirculation. Critical illness polyneuropathy may persist for years following ICU discharge and contribute to long-term physical limitation ***(Orme et al., 2003).***

The incidence of an ICU acquired myopathy and its impact on disability and prolonged rehabilitation in the post-ICU period are uncertain. A recent report described a 25 % incidence of ICU acquired paresis in patients remaining on the mechanical ventilator for 7 or more days ***(Dejonghe et al., 2002).***

The relationship between critical illness and emotional (mood) disorders is being recognized