VOLUME 24 | ISSUE 1 | February 2023

Sri Ramakrishna
Hospital (MultiSpeciality)

pulse

Happenings at Sri Ramakrishna...

47 Years of Excellence

one second can change your life

D Lakshminarayanaswamy
Managing Trustee

We stand committed in constantly raising the bar to deliver best-in-class healthcare. We recognise the vital role that technology plays in delivering superior healthcare services and endeavor to be at the forefront in procuring the best of equipment to better serve our patients.

The outbreak of the pandemic has been a reminder to all of us of the immense importance of having robust healthcare systems and infrastructure. The provision of adequate healthcare has become a daunting challenge in every country across the world.

We observed National Road Safety Week from January 11th to January 17th at Sri Ramakrishna Hospital to bring awareness to people regarding various emergencies. We believe that the right help can save lives at the right time. Our emergency care unit is well-equipped, and the staff has years of expertise handling minor to major emergencies and helping the victims find relief.

Dr P Sukumaran
Dean / Medical Director

Sri Ramakrishna hospital has always been a forerunner in conducting various academic programmes apart from regular clinical achievements. With increasing number of covid patients, it is always the rule of the land to adhere to the COVID appropriate behavior by wearing face masks, hand hygiene practices and sufficient interpersonal distancing to avoid spreading of the disease again.

Protect yourself and others strictly following these measures. We had conducted interesting webinar on the following topic this month on **Radiation Therapy - When & Why?** and **Role of Family Physicians in Oncology.**

Editorial Team

Dr P Sukumaran
Dean / Medical Director

Dr N Loganathan
Pulmonologist

Dr S Prahadeeshwaran
Head - Public Relations

Mr Murali Kaliappan
Head - Marketing

Emergency Care Awareness to the Ambulance Pilots & Operators

The hospital creates emergency care awareness among 100 Ambulance Pilots and Operators. Ambulance Pilots and Operators are the first persons to handle patients suffering from sudden health issues while enroute to the hospital. To improve awareness among them, Sri Ramakrishna Hospital, Coimbatore organized a one-day conference on Saturday at Velumani Ammal Memorial Auditorium. In this conference, Emergency Medicine Consultant Dr.Manjunathan spoke to the Ambulance Operators and Pilots about handling patients under Code Yellow conditions, while another Emergency Medicine Consultant Dr.Parthiban spoke about handling patients needing Intensive Emergency Care in detail.

This one-day conference was held in the presence of Dr.P.Sukumaran, Dean and Medical Director, Sri Ramakrishna Hospital and Mr.C.V.Ram Kumar, CEO, SNR Sons Charitable Trust. Around 100 Ambulance Pilots and Ambulance Operators handling emergency services took part in the program from in and around Coimbatore district.

Upcoming Events

Academics - Sri Ramakrishna Hospital, Coimbatore

Webinar

SRH Academics continuously extends its immense focus to the entire Doctors' Community. We are organizing webinars on alternative Saturday by 4:00PM. Hope, you will find this very informative and interesting for your practice. You will receive the Invitation and online portal hyperlink. Kindly find the link to view past webinars below.

https://meet.google.com/zbb-zjyp-hwy

Management of shock in the Older Adult

Critical illness can be present without marked vital sign abnormalities. Clinicians should be aware of alterations in potential presenting features of critical illness and decreased perfusion in older adult so as not to miss occult shock or impending decompensation .

Initial Steps

Although critically ill patients usually receive simultaneous interventions, initial steps should follow the standard "C-A-B" algorithm, actively working to stabilize hypotensive patients to optimize hemodynamics and avoid peri-intubation cardiac arrest .Large-bore intravenous (IV) access is ideal for resuscitation, both for rapidity of fluid infusion and for vasopressor use. A full set of laboratory tests should be obtained. Additional diagnostics depend on patient presentation and etiology of shock. Bedside ultrasound isa key diagnostic toolin undifferentiated shock and to guide resuscitation.

Hypovolemic Shock

Older patients with hypovolemic shock should be resuscitated with crystalloid orblood products as appropriate. Given the greater difficulty in maintaining appropriateacid-base balance in older adults,balanced solutions such as plasmalyte or lactatedRinger's, should be used. The physician should use cardiac echocardiographic to determine if right heart strain, diastolic dysfunction, or reduce dejection fraction necessitate a slower infusion to prevent exacerbating heart failure or precipitating pulmonary edema. Patients with hemorrhagic shock should be transfused with whole blood. Prompt,definitive hemostasis remains key to prevent prolonged hypoperfusion to organ systems and to improve outcomes regardless of age.

Cardiogenic Shock

There are much higher incidences of primary cardiac illness, such as heart block or myocardial infarction (MI) in older adults. When heart function is worsened or there is development of new heart failure secondary to an acute insult such as MI or PE, treatment of the underlying pathology with support of cardiac function is key. A cardiogenic component to shock can accompany other types of shock as well. Mixed venousoxygen (ScvO2) less than 70% from a central line catheter could be indicative of cardiogenic shock,but may fail to detect the cardiac component in states of decreased oxygen requirement, suchas neuromuscular blockade or high blood flow with decreased extraction, such as sepsis.Likewise, it would be incorrect to assume cardiogenic shock in high demandstates such as after a seizure, in hypoxemic states such as acute respiratorydistress syndrome (ARDS), or in the setting of severe anemia.

Epinephrine at inotropic doses is generally recommended in the emergency department due to the easy titratability and vasoconstrictive effectsof epinephrine, which can obviate the need for other vasopressors. Dobutamine and milrinone, while providing good inotropic effect, usually cause peripheral vasodilation often requires the addition of norepinephrine. In the case of cardiogenicshock secondary to acute MI, norepinephrine is recommended over epinephrinedue to higher incidence of refractory shock with epinephrine use.physicians should be prepared for secondary arrhythmias arising from use of inotropic medications given their arrhythmogenicity and the increased pr opensity of the older and critically ill populations to develop arrhythmias such as rapid atrial fibrillation orventricular tachycardia.In borderline hypotensive patients or those on vasopressors, the options to manage these rhythms are limited to relatively

hemodynamicallystable medications such as digoxin (for atrial fibrillation) or slow amiodaronebolus, or even electric cardioversion if hemodynamics are worsened.

Septic Shock

In patients with septic shock, existing evidence supports the avoidance of over aggressive IV fluid resuscitation and points to potential benefits with earlyadministration of vasopressors. Although the Surviving Sepsis Campaign guidelines make a general recommendation for a mean arterial pressure goal of 65 mm Hg orgreater in septic shock,the recent 65 Trial indicates that a lower goal of 60 mmHg may be a safe alternative in patients older than 65 years. Current guidelines in septic shock call for early source control, appropriate antibiotics,and norepinephrine as the first-line vasopressor, vasopressin as a second-line agent.

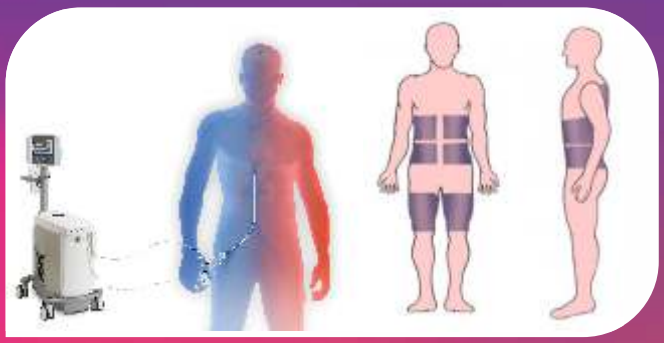
Clinics Care Points

Assessment of mental status, the shock index, and capillary refill time are better indicators of perfusion status and potential shock state.

The standard medications for RSI (rapid sequence inubation)are generally safe in older patients, but decreased dosing ofsedative agents is recommended

Management of the various shock states is generally the same; geriatric patients are athigher risk for pulmonary edema and arrhythmias in response to fluid resuscitation and intravenous catecholamines, and may require less aggressive options if they are too sick.

Dr.N.MANJUNATHAN
M.D.,
E.R.Consultant



Targeted Temperature Management (TTM)

Introduction

Targeted temperature management (TTM), previously known as mild therapeutic hypothermia, in selected patients surviving out-of-hospital sudden cardiac arrest (OHCA) can significantly improve rates of long-term neurologically intact survival, and it may prove to be one of the most important clinical advancements in the science of resuscitation in Emergency Department. TTM is an active treatment that tries to achieve and maintain a specific body temperature in a person for a specific duration of time in an effort to improve health outcomes during recovery after a period of stopped blood flow to the brain. This is done in an attempt to reduce the risk of tissue injury following lack of blood flow. Periods of poor blood flow may be due to cardiac arrest or the blockage of an artery by a clot. Targeted temperature management is thought to prevent brain injury by several methods, including decreasing the brain's oxygen demand, reducing the production of neurotransmitters like glutamate, as well as reducing free radicals that might damage the brain.

Guidelines

The American Heart Association (AHA) guidelines on TTM can be summarized as follows:

- Induce hypothermia for unconscious adult patients with return of spontaneous circulation (ROSC) after OHCA when the initial rhythm was ventricular fibrillation (VF) or pulseless ventricular tachycardia (pVT)
- Similar therapy may be beneficial for patients with non-VF/non-pVT (nonshockable) OHCA or with in-hospital arrest
- The temperature should be maintained between 32ºC and 36ºC
- It is reasonable to maintain TTM for at least 24 hours
- Routine prehospital cooling of patients with ROSC with intravenous (IV) rapid infusion is not advised
- It is reasonable to prevent fever in comatose patients after TTM
- Hemodynamically stable patients with spontaneous mild hypothermia (>33°C) after resuscitation from cardiac arrest should not be actively rewarmed

Inclusion criteria

Patients who have been shown to benefit from induced hypothermia include the following:

- Intubated patients with treatment initiated within 6 hours after cardiac arrest (nonperfusing VT or VF)
- Patients able to maintain a systolic blood pressure above 90 mm Hg, with or without pressors, after cardiopulmonary resuscitation (CPR) [2, 3, 4]
- Patients in a coma at the time of cooling

Exclusion criteria

Patients for whom hypothermia may theoretically carry increased risk include those with the following conditions:

- Recent major surgery within 14 days - Possible risk for infection and bleeding
- Systemic infection/sepsis - Small increase in risk of infection
- Coma from other causes (drug intoxication, preexisting coma prior to arrest)
- Known bleeding diathesis or with active ongoing bleeding - Hypothermia may impair the clotting system (however, patients may receive chemical thrombolysis, antiplatelet agents, or anticoagulants if deemed necessary in the treatment of the primary cardiac condition)
- In addition, hypothermia is inappropriate in patients with a valid do not resuscitate order (DNR)
- patients may receive chemical thrombolysis, antiplatelet agents, or anticoagulants if deemed necessary in the treatment of the primary cardiac condition)

Cooling Methods

- Surface cooling with ice packs
- Surface cooling with blankets or surface heat-exchange device and ice
- Surface cooling helmet
- Internal cooling methods using catheter-based technologies
- Internal cooling methods using infusion of cold fluids
- with a valid do not resuscitate order (DNR)

Treatment protocols

The goals of treatment include achieving the target temperature as quickly as possible; in most cases, this can be reached within 3-4 hours of initiating cooling. Three phases of TTM include induction, maintenance, and

rewarming. Rewarming can be begun 24 hours after the time of initiation of cooling, with avoidance of hyperthermia. External cooling with cooling blankets or surface heat-exchange device and ice. Before initiating cooling, confirm eligibility and gather materials.

- Obtain 2 cooling blankets and cables (one machine) to "sandwich" the patient; each blanket should have a sheet covering it to protect the patient's skin
- Alternatively, place heat-exchange pads on the patient per the manufacturer's recommendation
- Pack the patient in ice (groin, chest, axillae, and sides of neck); use additional measures as needed to bring the patient to a temperature between 32°C and 36°C; avoid packing ice on top of the chest, which may impair chest wall motion
- Monitor vital signs and oxygen saturation and place the patient on a continuous cardiac monitor, with particular attention to arrhythmia detection and hypotension
- Once a temperature below the goal temperature is reached, remove ice bags and use the cooling blanket or heat-exchange device to maintain temperature between 32°C and 36°C

Supportive therapy

- A mean arterial pressure (MAP) goal of more than 80 mm Hg is preferred; hypertension is potentially additive to the neuroprotection of hypothermia
- Norepinephrine can be used, starting at 0.01 mcg/kg/min and titrated to a MAP above 80 mm Hg
- Practice standard neuroprotective strategies such as placing the head of the bed at 30°
- Obtain a 12-lead electrocardiogram (ECG) after ROSC to evaluate for the presence of ST-elevation (class I, level of evidence B)
- Monitor for dysrhythmia (most commonly bradycardia) associated with hypothermia
- If life-threatening dysrhythmia arises and persists, or hemodynamic instability or bleeding develops, discontinue active cooling and rewarm the patient
- During cooling, an ECG Osbourne or camel wave may be present; heart rate less than 40 bpm is common and is not a cause for concern in the absence of other evidence of hemodynamic instability
- Check skin every 2-6 hours for thermal injury caused by cold blankets
- Regularly check the patient's temperature with a secondary temperature monitoring device when cooling
- After TTM, fever should be avoided
- Maintain oxygen saturation above 94%
- Do not provide nutrition to the patient during the initiation, maintenance, or rewarming phases of the therapy)

Controlled rewarming

Begin rewarming of the patient 24 hours after the initiation of cooling.

- Rewarm slowly at a rate of 0.3-0.5°C every hour
- Rewarming will take approximately 8-12 hours
- Remove cooling blankets (and ice if still in use)
- One method is to set the water temperature in the cooling device to 35°C and then increase the water temperature by 0.5°C every 1-2 hours until a stable core body temperature of 36°C has been reached for 1 hour
- Maintain the paralytic agent and sedation until the patient's temperature reaches 36°C; if infusing, discontinue the paralytic agent first; the sedation may be discontinued at the practitioner's discretion
- Monitor the patient for hypotension secondary to vasodilation related to rewarming
- Discontinue potassium infusions
- Avoid hyperthermia

Overview

The incidence of out-of-hospital sudden cardiac arrest (OHCA) in industrial countries is reported to be between 35.7 and 128.3 cases per 100,000, with a mean of 62 cases per year. Despite nearly 40 years of prehospital advanced life support, the survival rate of OHCA is very poor.

Less than half of victims who develop return of spontaneous circulation (ROSC) survive to leave the hospital alive, and the cause of death is anoxic brain injury in most patients with ROSC who die within one month of the cardiac arrest. Inducing mild therapeutic hypothermia in selected patients surviving OHCA has a major impact on long-term neurologically intact survival and may prove to be one of the most important clinical advancements in the science of resuscitation in emergency department. Some early great physicians, including Hippocrates, recognized the utility of hypothermia in attenuating injury.

Dr.M.PARTHIBAN
M.B.B.S., M.E.M.,
E.R.Consultant

Sri Ramakrishna Hospital creates Road Safety Awareness!

Sri Ramakrishna Hospital & Sri Ramakrishna Educational Institutions jointly organized a Road Safety Awareness Campaign at Gandhipuram Junction on Wednesday (Jan.11th) as a part of observing the Road Safety Week - 2023. Sivagurunathan, RTO, Coimbatore took part in the event as Special Invitee. Mr. C.V.Ramkumar, CEO of SNR Sons Charitable Trust, and Dr. P. Sukumarann, Dean, Sri Ramakrishna Hospital graced the occasion with their presence. Close to 200 NSS Students from various colleges under Sri Ramakrishna Educational Institutions enacted a Street Play about Road Safety, which was viewed by hundreds of people at the Gandhipuram Junction.

The NSS Volunteers also distributed Road Safety Awareness Pamphlets and appealed to the public to drive responsibly, restrain from driving under the influence of alcohol, avoid speaking over cellphones while driving and urged them to follow road rules for everyone's safety.

SNR SONS TRUST

Sri Ramakrishna Hospital

(Multi-Speciality)

395, Sarojini Naidu Road, Siddhapudur, Coimbatore

NABH ACCREDITED

0422 4500000 | info@sriramakrishnahospital.com | www.sriramakrishnahospital.com