

## 332nd EMDG performs unconventional procedure

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332nd Air Expeditionary Wing Public Affairs

4/13/2011 - **JOINT BASE BALAD, Iraq** -- When facing a dire situation, making split-second decisions can lead to mistakes.

Indecision, however, could cost lives.

With the clock ticking, medical staff of the 332nd Expeditionary Medical Group performed an unconventional procedure to help save a patient's life.

Members of the Air Force Theater Hospital emergency staff here recently performed a rare therapeutic hypothermia procedure to help save the life of a Soldier who suffered blunt force trauma to his chest. The decision allowed the patient to be well on his way to recovery within a matter of days.

### **Ramadi, Iraq (0-1 hour, 11:35 a.m., March 29)**

The incident started at a forward operating base outside of Ramadi, Iraq, when a U.S. Army soldier attempted to discharge a large extinguisher. According to Dr. (Capt.) Will Porr, 703rd Brigade Support Battalion, Ramadi Level II Battalion surgeon, when the victim discharged the bottle, the pressure may have built up and kicked into his chest. The blunt force trauma likely caused his heart to stop.

Captain Porr said there were no witnesses, and estimated the patient may have stopped breathing for upwards of three minutes before first responders arrived. The Soldier had no pulse, but medics who performed cardiopulmonary resuscitation were able to restart his heart. Within an hour he was medically evacuated by helicopter from Ramadi Battalion Level II center to JBB's Air Force Theater Hospital, 63 miles to the northeast.

According to the American Heart Association, more than 95 percent of cardiac arrest victims die before reaching the hospital. A victim's chances of survival are reduced by seven to 10 percent with every minute without CPR and defibrillation. Brain death and permanent death start to occur in just four to six minutes after someone experiences cardiac arrest.

### **Air Force Theater Hospital (1-13 hours)**

When the patient arrived, the emergency medical staff started its initial assessment.



JOINT BASE BALAD, Iraq--The 332nd Expeditionary Medical Group medical team, demonstrates using ice packs to decrease a patient's body temperature during a hypothermic resuscitation procedure. This procedure was the first of a kind for all technicians involved. (U.S. Air Force photo/Staff Sgt. Keyonna Fennell)



JOINT BASE BALAD, Iraq--The 332nd Expeditionary Medical Group medical team, demonstrates using ice packs to decrease a patient's body temperature during a hypothermic resuscitation procedure. This procedure was the first of a kind for all technicians involved. (U.S. Air Force photo/Staff Sgt. Keyonna Fennell)

Dr. (Capt.) Paul Haggerty, 332nd Expeditionary Medical Operations Squadron Intensive Care Unit flight commander, notified Dr. (Maj.) Daniel Carlson, 332nd Expeditionary Medical Group cardiology consultant, about the trauma patient.

During Captain Haggerty's assessment, cardiologist, U.S. Army Major Carlson volunteered his thoughts regarding the potential management of the patient's case.

"The patient was comatose upon arrival but was promptly resuscitated, which made him an ideal candidate for therapeutic hypothermia to improve his chances for a good neurologic outcome and return to full function," Major Carlson, who is deployed from Walter Reed Army Medical Center, Washington, D.C., said.

According to Captain Haggerty, a Manassas, Va., native, therapeutic hypothermia is a process to cool a patient's body to 89-93 degrees Fahrenheit in patients who have had been successfully resuscitated after sudden cardiac arrest. By cooling the body, the brain's metabolic requirements are reduced and in turn this helps patients to recover neurologic function.

"There have been several studies which shown that patients cooled for a period of 24 hours having improved neurologic outcomes and improved mortality," he said. "This procedure is becoming more widely instituted in the U.S. as part of resuscitative care for patients who have survived cardiac arrests."

The teams of surgeons, anesthesiologists, hospitalists, nurses and technicians never had been part of such a procedure, but were all very receptive to the idea. Captain Haggerty, who is deployed from Wright Patterson Air Force Base, Ohio, turned to appropriate medical sites on the internet for solutions.

After referring to University of Penn's Web site for post-cardiac resuscitation care, Captain Haggerty quickly implemented the protocol and directed the majority of the medical care.

"We didn't have cooling blankets or the high tech equipment the stateside hospitals have," Col. Paul Gourley, 332nd EMDOS commander, who is deployed from MacDill Air Force Base, Fla., said. "Our medical technicians were running around looking for coolers, while the third country national dining facility workers were getting ice from wherever they could, to cool this person."

According to Major Carlson, a Virginia Beach, Va., native, reducing the body temperature decreases tissue swelling and damage to the brain from interrupted blood flow during cardiac arrest.

Capt. Matthew Ockander, 332nd EMDOS Operation Room anesthesiologist, who is deployed from Travis Air Force Base, Calif., performed the initial sedation and paralysis of the patient. This prevented the patient from shivering which would inhibit the cooling process. Captain Ockander is a Fairfield, Calif., native.

U.S. Army Maj. Robert Bejnarowicz, 332nd EMDOS Operation Room, neurosurgeon, who is deployed from Tripler Army Medical Center, Hawaii, then drilled a hole in the patient's head so a tool could be inserted to monitor his intracranial pressure for swelling of the brain. Major Bejnarowicz is a Shabbona, Ill., native.

Members pitched in wherever they could. Colonel Gourley, a Philadelphia, Pa., native, took to blending ice, so the medical staff could flush the patient's stomach and bladder with chilled fluids, while others filled baggies to pack around the body. Along with chilled intravenous fluids the patient's core temperature was monitored with an intranasal thermometer. Senior Airman Casey Wilson, 332nd EMDOS medical technician, who is deployed from Lackland Air Force Base, Texas, carried a 50-pound fan from the basement gym to the intensive care unit to assist the evaporative cooling process. Airman Wilson is an Auburn, Wash., native.

Colonel Gourley said he saw one of the most robust teamwork efforts from total facility, once the call went out across the medical group.

"By taking basically no actual resources to make this happen is a testament to the ingenuity of Airmen and the ability to adapt and overcome anything that was put in front of them," he said. "There was easily more than 30 people involved to save one life."

#### **Critical Care Air Transport Team (13-18 hours)**

After stabilizing the patient's condition, 12 hours have passed since he arrived at Balad. At that point emergency medical staff determined the patient needed to be transferred to Landstuhl Regional Medical Center, Germany.

The 332nd Operations Group critical care air transport team, the only one of its kind in Iraq, was activated. The

CCATT is deployed from Eglin Air Force Base, Fla., and is made up of Dr. (Capt.) Jeff St. Amant, emergency medicine physician; Maj. Kirk Smith, critical care nurse and Master Sgt. Brandi French-Thomas, respiratory therapist.

The CCATT's role is to transport critically ill or injured patients out of theater and to a higher level of care, as close to the time of injury as possible. They strive for 24 hours or less, and in this case, the patient was delivered in less than 18 hours.

Colonel Gourley, who was taking a heart attack patient to Landstuhl, was along for the ride.

"There was so much equipment around the trauma patient that he had to be floor loaded onto the bus," he said about the more than 500 pounds of life sustaining machines.

According to Captain St. Amant, a Ft. Lauderdale, Fla., native, the patient was a challenge to manage in the back of an aircraft.

"He was on a ventilator, a cardiac monitor, invasive blood pressure monitoring, seven different continuous medication infusions and an intracranial pressure monitor," he said.

Captain St. Amant lauded the 332nd EMDG staff on using hypothermia, to provide the patient the best chance of recovering and regaining normal function.

"This protocol is only used under very specific circumstances and he met the criteria," the captain said. "The Balad hospital did an outstanding job with this patient and had him cooled to 90 degrees Fahrenheit (normal body temperature is 98.6 Fahrenheit.)"

#### **Air Power (13-18 hours)**

To keep the patient's body temperature cooled, the CCATT used ice packs, refrigerated intravenous fluids and the help of the 729th Airlift Squadron C-17 loadmasters, who are deployed from March Air Reserve Base, Calif.

"We asked them to turn the heat off in the back of the aircraft to keep it cold," Captain St. Amant said. "It made for a chilly flight, but all of the crew, passengers and other patients understood that it was necessary for the patient."

According to Lt. Col. Ben Hackworth, 729th Airlift Squadron C-17 pilot, the longer a patient is in flight the more chances there are for complications. So when there are critical patients on board, it is not uncommon for them to operate at faster than normal airspeeds.

"Patients are prepped for the duration of the flight, but medical resources are limited," Colonel Hackworth, a Murrieta, Calif., native, said. "In this case, we were informed by medical personnel that any time saved would benefit the patient. So we expedited as best we could."

On a typical flight, pilots operate at speeds between Mach .74 (548 mph) and .76 (563 mph) which provide the greatest fuel savings when level at cruising altitude. On this particular mission, due to the expressed critical nature of the patient, the C-17 crew operated at Mach .80 or 593 mph, which saved about 30 minutes, Colonel Hackworth noted.

"We are permitted to request "high speed" operations below 10,000 feet (mean sea level) in certain airspace," he said. "The German approach controllers approved high speed operations during the final phase of our arrival into Ramstein Air Base, Germany."

Marked with countless invisible barriers and international boundaries, pilots cannot fly in a straight line. With critical patients on board and to shave time, the March crew continually pressed air traffic controllers for the most direct routing to Germany.

Captain St. Amant said the loadmasters, pilots and air-evacuation crews they fly with were top-notch and pitched in to provide the best for the patients.

#### **Landstuhl Regional Medical Center, Germany (5 a.m., March 30)**

Once in Germany the patient was handed over to the care of the Landstuhl medical team.

Colonel Gourley's flight back to Iraq was delayed 24 hours, so he had the opportunity to witness the payoff of his

medical team's efforts. The therapeutic hypothermia protocol required a person to be cooled for a specific timeframe than have the core temperature warmed up slowly.

"He was heavily sedated and not moving, but as they slowly brought his temperature up he started to wake up," Colonel Gourley said. "He even asked to use the 'commode.' When patients get ornery that's a good thing."

The medical team at Landstuhl was ecstatic and considered this a great save, he noted.

"The fact that this guy was on death's door, looking horrible to sitting up in bed and knowing his name ... therapeutic hypothermia has a lot of benefits," Colonel Gourley said.

The colonel believed this may be the first use of hypothermia protocol in Iraq, and the second in the Central Command area of responsibility.

### **Homestretch (2 April)**

As the patient's condition improved, he was transported to and released from Brooke Army Medical Center, Texas, to recover with family members.

According to Captain Haggerty, the patient's favorable outcome and success story was attributed to everyone involved in his care. From first responder who began CPR, to the emergency department staff at Ramadi who successfully revived him from cardiac arrest, to the JBB team who initiated the hypothermia protocol. The CCAT team who monitored him during transport, the C-17 aircrew who flew him to the receiving team at LRMC to be re-warmed, to the discharging team at BAMC, played a critical part as well.

"His care required enormous teamwork across a continuum of care, and his survival is a testament to the training and dedication of the men and women in the U.S. military," Captain Haggerty said. "This is definitely one of the most rewarding patient cases in my career, and is something I will never forget and feel privileged to have been a part of."