

Program Sponsors:

- Children's Hospital of Wisconsin
- Froedtert Memorial Lutheran Hospital

Illinois Helicopter
Additional Sponsor:

- Northern Illinois Medical Center

A Program of the Milwaukee
Regional Medical Center

SUMMER 2000

FLIGHT ROUNDS



TRAUMATIC PNB

Michael P. Kefer, MD, FACEP

*Associate Professor, Department of Emergency Medicine
Medical Director, Flight for Life*

There are few experiences for those of us involved in EMS that squeeze one's adrenal glands more than that of the encounter with the trauma patient who has become a pulseless non-breather (PNB). Typically, the EMS provider puts patient care above all else including safety, cost, and convenience. Some EMS systems have protocols that provide direction to their prehospital personnel on when to forego or stop resuscitative efforts at the scene involving a traumatic PNB. Is this justified? What is the prognosis in these patients? What is the cost benefit ratio of the care provided? Is outcome the same in pediatric patients vs. adults? Does bringing the hospital to the patient (by summoning the helicopter) improve outcome compared to transporting the patient directly to the hospital? A review of the recent medical literature is presented to provide insight to the evidence on which our practice is based.

Shimazu et. al., reported a series of 267 patients who sustained blunt or penetrating trauma who were PNB at the time of hospital arrival. All patients had resuscitation efforts continued in the hospital. Six of 267 patients survived, 2 with severe neurologic impairment. The resulting functional survival rate in this series was 1.5%.

Copass et. al., reported a series of 131 trauma patients who sustained blunt or penetrating trauma that required prehospital CPR by paramedics. The duration of CPR and the transport times to the hospital were recorded and outcome was analyzed. CPR lasted an average of 12 minutes in survivors, 28 in non-survivors; 102 patients

2000/2001 UPCOMING EVENTS/CONFERENCES

TNS Refresher Course October 11 and 12, 2000

Emergency Services Conference

October 19, 20, & 21, 2000

Flight For Life is hosting its 16th annual Emergency Services Conference: Trends and Issues 2000. Locations: Oct. 19 9a - 1p Libertyville, IL; Oct. 19 6p - 10p Grayslake, IL; Oct. 20 9a - 1p Fond du Lac, WI; and Oct. 21 8a - 12p Milwaukee, WI. Baxter Larmon, PhD, MCIP, Assoc. Prof. of Medicine, UCLA School of Medicine/Dir. - UCLA Center for PreHospital Care will present Myths of Assessment, Trauma Assessment, and Case Studies in Pre-Hospital Care

For more information, call Terry Steinert at (414) 805-6427.

Safety Inservice

January 20 and August 18, 2001

The Wisconsin helicopter will offer a safety inservice for pre-hospital personnel in January and August 2001. The location of

the inservice is yet to be determined. Upon completion of the inservice, personnel are eligible to sign up for a ride along shift with the Flight For Life staff.

Participation in this program is open to pre-hospital personnel in the following counties: Dodge, Fond du Lac, Jefferson, Kenosha (north of Hwy 142), Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, and Waukesha.

To register, call Terry Steinert at (414) 805-6427.

TNS Course

January 31 - February 22, 2001 (Every Wed. & Thurs.)

Trauma Nurse Specialist course is first come, first served. Only 20 applicants are accepted. Call the Flight Nurse office for more information or an application at (414) 805-6422.

PHTLS

Flight For Life plans to hold a Pre-Hospital Trauma Life Support instructor course and a provider course. Location and dates to be announced.



NORTHERN ILLINOIS MEDICAL
CENTER



Flight For Life
A Program of the Milwaukee Regional Medical Center
9000 W. Wisconsin Avenue
Milwaukee, Wisconsin 53226
Administrative phone: 414/805-6427



Non-Profit
Organization
U.S. Postage
PAID
Permit No. 5316
Milwaukee, WI

1998 EMS Award

The 5th Flight For Life EMS award was presented at the 15th Annual Flight For Life Emergency Services Conference: Trends and Issues 1999. The EMS award was developed to recognize and honor the outstanding contributions to patient care by EMS professionals throughout southeastern Wisconsin and northern Illinois.

The award for 1998 in Wisconsin was given to the Rochester Volunteer Fire Company. The Flight For Life-Northern Illinois winner was Antioch Fire Department and the Antioch Rescue Squad.

Applications were sent to all departments who utilized the Flight For Life helicopters at the scene to transport a critically injured patient in 1998. Criteria for the EMS award include: scene safety, triage decisions, complex planning and accident scene management, integration of the helicopter into the call, and utilization of skills that went beyond the “call of duty” to treat the patient.

Rochester Fire and Rescue was dispatched to the scene of a head-on, three-vehicle collision at Hwy J and Rowntree Rd in Rochester. The Chief, Frank Price, was the first to arrive at the scene, finding a man and woman trapped in a car, one man lying on the pavement with another man pinned in a truck, and a third vehicle approximately ¼ mile from the initial impact. He requested Waterford Rescue for mutual aid with manpower and two additional squads, and Flight For Life to be put on stand-by.

Rochester transported two patients to Memorial Hospital of Burlington and Waterford arrived and transported a third. Flight For Life arrived on the scene, assessed the fourth patient, and transport the patient to the Trauma Center at Froedtert.

Once the three patients arrived at Memorial Hospital, they were assessed and Flight For Life-Northern Illinois was requested to transport the first of them to Froedtert. After dropping off their patient from the scene, FFL-Wisconsin flew to Burlington and picked up the second of the patients. FFL-Northern Illinois then flew back to Burlington and transported the final patient. In all, four patients were flown from this accident in a period of less than two hours.

In Northern Illinois, the award was given to the Antioch Fire Department and Antioch Rescue Squad who had been requested to a scene reporting a man down in the water with a probable spinal cord injury. Upon arrival of both Fire and Rescue, the patient was found to be lying in the water on a piece of wood from the pier with his head immobilized by his friends. It was the quick thinking of the victim’s friends that helped to preserve his remaining sensation and mobility.

Flight For Life-Northern Illinois was dispatched to the scene where they quickly assessed the patient and transported him to the Spinal Cord Injury Center at Froedtert Hospital for treatment of his C5 fracture and accompanying cord compression, which resulted in quadriplegia.

The patient, Mark Bowbowski, attended the award ceremony along with members of both the Antioch Fire Department and Antioch Rescue Squad. The departments presented him with an award of their own for his courage and attitude regarding the accident and the changes it brought into his life.

Traumatic PNB continued

died; 29 patients were discharged from the hospital, 3 with significant neurologic impairment. Also of note, 95% of the patients who died had sustained blunt trauma.

Aprahamian et. al., reported a series of 95 trauma patients who sustained blunt or penetrating trauma who were PNB upon arrival of paramedics at the scene. All 86 patients died whose initial rhythm was EMD or asystole. Six of 9 patients whose initial rhythm was v-fib also died. No data was reported on neurologic outcome in the 3 survivors.

Wright et. al., reported a series of 67 patients who sustained blunt or penetrating trauma who were PNB upon arrival of the helicopter with a nurse/physician air medical crew at the scene. Twenty patients died at the scene and 47 were transported to the hospital where resuscitation efforts continued. All patients died.

Pasquale et. al., reported a series of 106 patients who sustained blunt or penetrating trauma and received CPR prior to arrival at the trauma center; 103 patients died. The 3 survivors were all discharged neurologically intact. Although not included in the data analysis, this paper mentions there were 14 patients between the ages of 1 and 10, all of whom died. The authors developed clinical criteria for declaring patients dead on arrival (DOA), which they applied retrospectively to these 106 patients. They then calculated the cost savings that would have resulted had the DOA criteria been applied. They provide a conservative estimate that nationally \$14,000,000 could be saved annually by trauma centers if evidence based DOA criteria were applied.

The above studies included pediatric patients in their series. Hazinski, et. al., looked specifically at a pediatric population of 2,120 consecutive victims of blunt trauma. Of these, 30 patients were PNB on hospital arrival and underwent aggressive resuscitation. Although some patients were temporarily revived and transferred to the operating room or ICU, all patients died. The authors advise that, pediatric victims of blunt trauma who present PNB to the hospital have an extremely poor prognosis that should be considered before prolonged resuscitation begins and that, parents should not be given false hope if temporary revival occurs.

Rosemurgy et. al., reported a series of 410 patients who sustained blunt or penetrating trauma with pre-

hospital cardiac arrest. Two hundred and seventy-two patients died at the scene and 138 were transported to a trauma center. All patients died: 121 died in the emergency department, 12 in the operating room and 15 in the intensive care unit. No solid organs were obtained for transplant. The authors determine that the "cost of futility" - the cost of resuscitation of the 138 traumatic PNB patients who were transported to the trauma center, was \$880,000. The authors then provide a thought provoking discussion on the other costs of care that go beyond the bill: the 1000 units of blood used, donated by altruistic citizens, that turns out to have been a wasted resource; the ED or ICU bed or OR that was, as a result, unavailable for others; the time and care given by the trauma team that could have been directed to other viable patients; and the occupational risks to health care workers associated with exposure to communicable diseases such as hepatitis, HIV and those potentially already transmitted, but have yet to be discovered.

The information provided above is not, by any means, meant to discourage a continued aggressive approach to resuscitation of the critically injured patient. Rather, the intent is to give insight to the prognosis of this group of patients so that EMS personnel will not impose unrealistic expectations upon themselves. The patient should always be given the benefit of the doubt should any exist, but realize no matter how talented the EMS provider and no matter how excellent and advanced the care delivered, as a group, trauma patients who become pulseless non-breathers have a grave prognosis at best.

Latex Allergy

Lisa Heinz, RN

Latex is a natural substance derived from the milky sap of the rubber tree.

Latex allergy - a hypersensitivity to latex. It arises when the immune system reacts to the substance (allergen). An individual may experience a reaction either to the chemical additives used in the manufacturing of the latex products or to the proteins in the latex itself. Persons who develop a sensitivity often have a history of hay fever, asthma, eczema, food allergies, or a history of other allergies.

Allergic reactions to latex are increasing at an alarming rate. The devastating effects of this allergy on health care providers are startling. Hopefully, this article will help to develop an awareness of this condition.

Why the recent outbreak of latex reactions/allergies?

Latex gloves became the barriers of choice for protection against the transmission of infectious diseases. Their increase in use was prompted by OSHA regulations which we know of as Universal (or Standard) Precautions. Because of these regulations a latex shortage occurred in the mid 1980's. This prompted new suppliers to emerge. However, these new manufacturers did not necessarily have the experience of processing natural rubber latex. Therefore, high levels of protein were found on certain latex products. This prompted our immune systems to develop responses to reject the protein.

Types of Reactions:

There are three common reactions to latex.

- 1) Irritant dermatitis - This is NOT an allergy. The powder in the gloves can cause it. Symptoms include localized itching and redness. Treatment is not to wear the powdered gloves that cause this irritation.
- 2) Type IV reaction - This is triggered by the chemicals used during the processing of latex. The powder carries these chemicals. This reaction may be delayed for as long as three days. However, the time of exposure to reaction decreases with continued exposure. Symptoms include itching, redness, flushing, edema, coughing, runny nose, and conjunctivitis. Some of these symptoms occur from the powder becoming aerosolized or by the glove wearer touching his/her face. The symptoms resolve when the person has time off from work. This makes the diagnosis very difficult.
- 3) Type I reaction - This is an immediate allergic reaction to the latex itself. Mediated by IgE, an immunoglobulin that plays a role in allergic reactions by attaching itself to mast cells of the respiratory and intestinal tract. The latex proteins bind to these cells and histamine is released.

Because of the different protein antigens in the latex and the degree of an individual's sensitivity, the symptoms may vary from person to person. Also, an individual's degree of sensitivity increases with increased exposure. The symptoms may initially be local and then progress to systemic.

Those at risk:

Individuals with medical conditions that require frequent surgeries and frequent catheterizations.

Persons who have allergic reactions (oral itching, rash, hives, wheezing) to the following foods may have a sensitivity to latex:

Avocados	Milk	Peaches
Bananas	Nectarines	Passion Fruit
Cherries	Celery	Plums
Melon	Kiwi	Tomatoes
Chestnuts	Potatoes	Papaya

Implications for Health Care Providers:

It is important to take precautions that can help minimize the risk of reactions to latex. The following are examples:

- 1) Switch to latex free gloves.
- 2) Only wear gloves when indicated and use your common sense
- 3) After removal of gloves wash your hands thoroughly
- 4) Avoid touching your face and eyes when wearing latex gloves

If you are diagnosed with a latex allergy:

- 1) Wear a Medic Alert bracelet (call 1-800-245-1492 for info)
- 2) Carry a letter with you that contains your doctor's phone number as well as information regarding a treatment protocol.
- 3) Avoid exposure to latex as much as possible.
- 4) Carry an Epi-pen.
- 5) Carry non-latex gloves with you for caregivers to wear in an emergent situation.

Recommendations for EMS agencies and Health care facilities:

- 1) Have questions regarding latex allergies when obtaining patient histories.
- 2) Have non-latex alternatives on hand as well as latex safe areas available.
- 3) Have established policies and procedures to deal with their employees allergic to latex.
- 4) Establish protocols for treatment of a person with a latex allergy.
- 5) Place three-way stopcocks in IV lines for medication administration.
- 6) Do NOT use rubber medication stoppers and IV rubber injection ports.
- 7) People in a high-risk group who have not exhibited symptoms of latex allergy should have limited exposure to latex products.

(Latex continued)

- 8) Consider latex exposure as a cause of sudden unexplained deterioration in a patient that may not have already been diagnosed or is unable to communicate that they have a hypersensitivity to latex products. Treatment for anaphylaxis may be needed.

In conclusion, our goal should be to provide our patients with a latex safe environment. We also need to take care of ourselves, as it has now become an occupational risk to develop a latex hypersensitivity. By staying informed about products and information available you can help reduce the risks as well as help protect your co-workers who may have this potentially devastating problem.

Severe Traumatic Facial Injury

Betty Ganschow B.S. EMT-P

Severe facial trauma challenges the skills of all providers, both in the field and in the hospital. 60% of all patients with severe facial trauma potentially have other life threatening injuries. It takes a force of 150 times gravity to fracture a maxilla. If the maxilla and mandible are both fractured, 9% of those patients have C1 and C2 fractures. With disrupted facial structures and missing airway landmarks, where do you begin your assessment?

If your patient is unconscious, look for bubbles in the area of the neck. Bubbles will be coming from the trachea; follow the bubbles to the hole. That will be a traumatic artificial opening to the airway. Secure the airway as best as you can by appropriate means. Always immobilize your patient.

If your patient is conscious, use the KED device to immobilize your patient's spinal column. Allow them to remain in the seated position. Provide the patient with a Yankauer suction and allow them to suction themselves as needed. Provide supplemental high flow oxygen. Patients will suction enough to maintain their airway. The KED, with a cervical collar if possible, will maintain immobilization while maintaining an optimal airway.

Severe facial trauma can be one of the most challenging cases you may have. Remember, there is always more than one way to do something. Be creative and think positively.

Tracking Equipment From Patients Transported by Flight For Life

Every year Flight For Life transports over a 1,000 patients, many of those patients are transported utilizing one or more pieces of equipment from the referring agency. Flight For Life documents and clearly labels each item for easy return to our office so that we can ensure its delivery to the appropriate department/squad. Because of this process, we have practically eliminated lost equipment problems.

Flight For Life has contact with over 250 hospitals, fire departments, and rescue squads on an annual basis. The labeling and documentation process alone cannot always ensure that your equipment will be found and, thus, returned. There are certain things that each department/squad can do to make sure that their equipment can be identified for return. Below are suggestions that will increase the likelihood that this will happen:

- Mark your backboards, CID pads/blocks, and any large pieces of equipment with your full department name (i.e. stickers or permanent marker).
- Straps for all equipment should be permanently marked or engraved with your department name, as these are the most lost items other than backboards.
- Put your phone number on the backboard just in case it travels to a distant location.
- Engrave or otherwise permanently mark your Hare Traction and KED devices.

In situations where all these measures fail and equipment is lost and the receiving facility will not reimburse your department, Flight For Life will replace the missing item(s). We hope that through the diligent efforts of all concerned, these situations will be very infrequent.