

How Far is Too Far

Anatomy of An 182-Mile Scene Flight

Since most scene flights afford very brief time for a flight nurse to care for a trauma victim, I would like to present an experience of spending almost two hours resuscitating a trauma patient who had not been evaluated or initially resuscitated in a medical facility.

On July 11, 1987 at 8:57 a.m., the CareFlight Helicopter was dispatched to respond from Reno to Humboldt General Hospital in Winnemucca, Nevada for a unknown-aged male pedestrian struck by a vehicle. The only medical information available at the time of dispatch was that the patient had no sensation from his waist down and his vital signs were: B/P 84/62, pulse 108 and respirations "rapid and shallow."

Care Flight departed the base hospital at 9:12 a.m. after putting on extra fuel for the long flight. At 9:45 a.m., the flight crew was advised that they had been requested to fly directly to the accident scene which was located at a mine site approximately 38 miles northeast of Winnemucca. No further update was available.

At 10:30 a.m., contact was made with the ambulance crew on scene • who informed us that the patient was a 40-year-old male who had been crushed between two vehicles — one of which was a water truck travelling at a slow rate of speed. The accident had occurred at 8:00 a.m. with the ambulance arriving on the scene at 9:30 a.m. The paramedic reported pelvic and bilateral femur fractures. The patient was awake, alert, oriented, in severe pain, hypotensive and tachycardic with one large-bore line and O2 per non-rebreather mask in place. He also reported the patient to be in a prone position and in too severe pain to be repositioned or

moved the 35 miles over rough terrain to the hospital.

At 10:41 a.m. Care Flight landed at Winnemucca Airport to refuel for the return flight. The decision was made to refuel prior to loading the patient to avoid unloading and reloading an unstable patient at the airport during the refuelling process.

Due to the patient information and the length of the return flight to Reno, contact was made with

Humboldt General Hospital to arrange for as many units of 0-Negative packed cells as possible to be picked up by the flight crew. At 10:55 a.m. CareFlight touched down in the hospital parking lot to pick up the only two units of blood available.

At 11:00 a.m., the paramedic on scene advised the flight nurses that he had the last available liter of IV fluid hanging and was slowing the rate so it would last until our arrival. He updated a B/P of 64 by palpation with a heart rate of 120 after 3600 cc of fluid. The flight nurses instructed him to turn the patient and apply antishock trousers and totally inflate them. Our ETA was now 17 minutes.

At 11:17 a.m., Care Flight landed to find an awake, alert, oriented male with antishock trousers applied but only partially inflated due to the patient's complaints of severe pain with increased inflation. He had a palpable carotid pulse, shallow respirations at 20 per minute, a profoundly tender but flat, soft abdomen, cold cyanotic feet without palpable pedal pulses, a severely externally-rotated left foot, and a generally pale grey pallor. His total trauma score was 13 with Glasgow score of 15 and ISS of 35.

While the primary nurse did a quick assessment and obtained a detailed report, the back-up nurse initiated the infusion of the first unit of packed cells, applied the cardiac monitor and attached the patient to CareFlight's O2 tank.

He was then lifted to the Care Flight stretcher and loaded into the helicopter. At 11:27 a.m. we were airborne en route to Reno.

During the next hour and 45 minutes, the patient was nasally intubated and placed on the volume ventilator with 100 percent O2 two more large bore lines were started with a total of 500 cc of packed cells and 6500 cc of crystalloid infused; Ancef 1 gm was given IV; Nubain was titrated for pain control. He remained awake and alert and verbalizing requests appropriately; his B/P increased to 120 systolic per doppler just prior to landing in Reno but averaged 60-80 systolic most of the flight.

His heart rate remained at 136 per minute with the monitor showing sinus tachycardia without ectopy; he began to show signs of DIC by oozing around needle sites.

Upon arrival in the ER at 1:12 p.m., his B/P was obtained at 84 systolic and his initial hemoglobin was 5 gm. His diagnosis was avulsion of the rectum, severe lacerations of the perineum with disruption of the urethra and scrotum, bilateral femur fractures, right ankle fracture and multiple pelvic fractures. He was taken to the OR for repair of the perineal injuries, diversion colostomy, femoral traction and external pelvic fixation.

During the first 48 hours he required 41 units of blood and 16 units of fresh, frozen plasma. He developed mild ARDS and DIC but recovered remarkably quickly and was transferred out of ICU within a week. He underwent further surgical repair of orthopaedic injuries after his respiratory and cardiovascular status stabilized. He remains in an out-patient rehabilitation program for some residual neuro deficits to his left leg.

The next time someone claims a mission is too far to respond to remember, maybe long distance scene responses can be beneficial. Who is to judge how far is too far for the trauma victim.

Pam Altringer, RN, is a flight nurse with CareFlight in Reno, Nev.

LETTERS

How Far is Too Far?

After reading "How Far is Too Far" by Pam Altringer [Industry Focus, May/June 1988], we feel there are a number of points worth commenting on.

First, we are puzzled by the intubation of this patient.

Second, accepting that the patient had been intubated for whatever reason, there is no logic in employing nalbuphine (Nubain) for pain relief. Third, "oozing around needle sites," after over 10liters of IV crystalloid, should be regarded as a dilutional coagulopathy due t lack of platelets and/or clotting factors until proven otherwise.

The fact that the patient survived should not be the sole criterion on which to address this question. We believe that tis mission was too far because the limitations imposed by staffing (flight nurses rather than critical care physicians), supplies (lack of adequate blood products) and possible protocol restrictions prevented the patient from receiving optimum therapy

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Editor's Note: This letter was forwarded to Pam Altringer, author of "How Far is Too Far" CareFlight's (Reno, Nev.) director of nursing and medical director, as well as Ms. Altringer, declined comment at this time.

Helmets: Two Views

Regarding Robert Mayberry's article "Medical Air-Crew Roles and Responsibilities During Aircraft Emergencies" (July/August 1988), I disagree with the pre-impact, brace as appropriate to seating configuration-rear facing: sit up, grab chest straps; forward or side facing: bend over and cover head if not wearing a helmet."

The appropriate crash position should be dictated by the type of restraint system provided for the occupant, in addition to the direction the seat is facing. If a lap belt/shoulder harness apparatus is provided, and a violent landing is imminent, the crew member should tighten all straps (especially the lap belt to avoid "submarining" during the crash sequence) and lock the inertia reel.

If the seat is facing the rear of the aircraft, the head should be held firmly against the headrest or bulkhead above the seat in order to reduce G-loading during impact. If only a lap belt is provided, regardless of the orientation of the seat, crew members should reach under their thighs and interlock their own arms to reduce flailing, a frequent cause of injury. Those not wearing a protective helmet are unlikely to achieve significant protection by covering their heads with their hands. Their arms are more likely to flail in this unrestrained position.

Obviously, those crew members wearing a good flight helmet will receive optimum head protection.

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Author Reply: *in an effort to make the article as concise as possible, text was omitted. That left the "prior to impact" segment incomplete and confusing. I agree that crash positions are dictated by seating configurations and the restraint systems provided. I also agree with those pre-impact techniques described for the crew seats equipped with a shoulder/lap belt assembly. However, my experience and research did not reveal a particular technique superior for crew seats equipped with only a lab belt. Because of the mortality and morbidity associated with head injuries, and until protective helmets become the standard, it would seem prudent to protect the head as best as possible. Thank your comments. It is by sharing information that we can make the aeromedical industry as safe as it should be.*

Although the cover photo [of Medi-Flight, Northern California] on the July/August 1988 issue was

of helmets reflects a disturbing lack of actual crew safety. While head injuries contribute to a large number of aeromedical accidents, few programs have adopted the use eof a quality helmet.

Many readers associate photographs with a trend and as examples of helicopter safety. The July/August issue contains severe other photos that fail to document the importance of helmets in regard to helicopter safety. Having picked up the survivors of another aeromedical program's helicopter crash, it is evident that flying equipment alone constitutes a real danger to the survivability of a hard landing. One unhelmeted flight nurse was struck directly in the head by the 20 pound cardia monitor. The concussive episode that followed rendered her unable to adequately protect herself or others involved in the post-crash incident.

We strongly urge the use of helmets during all aspects of flight operations and suggest that perhaps a photo depicting the use of helmets would have been more appropriate.

Dexter Hunt, EMT-P, Flight Paramedic Betsy Hazelwood, RN, Flight Nurse LifeFlight Saint Alphonsus Regional Medical Center Boise, Idaho

Medic-Flight Replies: I applaud Mr. Hunt and Ms Hazelwood for taking issue with this. I feel as many other do-that the helmet issue must be discussed and resolved in the near future.

My program's decision to not use helmets as a routine part of safety equipment is most likely similar to many others. There is little actual scientific data t substantiate the mandatory use of helmets as safety equipment.

Clearly, helmets provide extra protection, but does this extra measure of protection make a real difference in survival at the critical moment? This question must be answered scientifically and collectively by the industry to justify the additional cost and to assure compliance on the part of the flight crew.

I am thankful for the recent NFNA position paper that addresses safety equipment. Without such a stand by organizations and individuals within our industry, positive change will not occur.

Frank Erdman, program Director Medi Flight