

## Abstracts

Compiled By: Journal Staff

### **Base Station Prehospital Care: Judgement Errors and Deviations From Protocol**

WASSERBERGER J, ORDOG GJ, DONOGHUE G, BALASUBRAMANIAM S

*Annals of Emergency Medicine* 16:867-871, 1987

5,994 paramedic calls during a three year period were studied for the incidence of base station operator deviation from established prehospital care algorithms and standard medical practices. Base station operators were emergency medicine residents and mobile intensive care nurses. Information for each call was obtained from written paramedic reports, audio tapes from the base station radio and written reports from the base station operators. 336 deviations were identified in 283 patients by the base station liaison physician. All deviations were reviewed by a panel of board certified emergency physicians. Deviations consistent with standard care (43%) were not considered errors. There were 193 deviations (57%) from standards of medical care. The most common deviations were in failure to administer prophylactic lidocaine to stable adult patients with non-pleuritic chest pain (19.2%) and failure to apply cervical immobilization to suspected head trauma cases (9.2%). Half of all deviations without sound medical judgement were made by base station operators not having adequate knowledge of the prehospital algorithms. The authors conclude that physicians in charge of medical control should be aware that algorithm deviations by base station operators are frequently in conflict with standard medical care and often reflects a need for reinstruction on prehospital care protocols. Request reprints from: Gary J. Ordog, MD, Emergency Department, King/Drew Medical Center, Box 219-12021 S, Wilmington Ave., Los Angeles, CA 90059

### **Prehospital Advanced Life Support vs "Scoop and Run" in Trauma Management**

GOLD CR

*Annals of Emergency Medicine* 16:797-801, 1987

The advantages and disadvantages between ALS and BLS level care for prehospital trauma care are reviewed. The author asks if ALS in the field has proven benefit or if it simply a costly exercise in futility. The discussion minimizes the potential benefits of field ALS for patients that are not critically compromised as well as those with injuries so severe that there is no hope for survival. The subpopulation between these two extremes are likely to have outcomes significantly affected by field care. However, the ability to reliably identify this subpopulation is questionable, despite the use of any currently available trauma scoring method. The need and efficacy for airway control with endotracheal and esophageal obturator devices are discussed and the lack of data correlating either device to mortality is identified. Similar debate is presented regarding MAST and IV crystalloid replacement in the field. The research into the overall impact of ALS vs BLS level care is discussed, with conflicting results. Medical control is also discussed in terms of field autonomy as opposed to tight radio control by the emergency department physician. The author concludes that there is no clear cut answer to the field stabilization vs scoop and run approaches. An appeal is made for well controlled, prospective and randomized studies, despite the controversy of ethics regarding prehospital randomization. Support for a complex EMS system appears to be based on hope of efficacy rather than objective proof.

Request reprints from: Claudia Gold, MD, 187 Oranglethorpe Ave., Suite H, Placentia, CA 92670

### **Paramedic Perception of Elapsed Field Time**

JURKOVICH GJ, CAMPBELL D, PADRTA J, LUTERMAN A

*Journal of Trauma* 27:892-897, 1987

The authors attempted to accurately quantify how much time various procedures actually take in prehospital ALS care and to determine if paramedics accurately perceive how much time various procedures and phases of care really take. This latter point is suspect as a possible explanation for extended trauma scene times. Ten experienced paramedic teams were scored by an independent observer. The observer recorded the entire EMS call on audio tape recorder with verbal notation when each procedure was started and completed. After each call, the paramedics were asked for their estimate of response, on-scene, and transport times. The estimates, with allowance of a two minute margin of error, were compared to stopwatch measures made from the tape. Intubations actually took 2.3 min (SEM=0.69) with a mean perceived error of 28%. The first IV took 5.0 min (SEM=0.47) with 27% perceived error. Anti-shock suit application took 2.25 min (SEM=0.25) and a perceived error of 11%. With shorter field times, actual run times tended to be overestimated while long scene times tended towards underestimation. The authors conclude that paramedic misperception of scene and procedure times should prompt medical control to monitor elapsed time to alert paramedics when further delay could jeopardize patient outcome.

Request reprints from: Gregory J. Jurkovich, MD, Department of Surgery, University of South Alabama, 2451 Fillingim St., Mobile, AL 36617

### **A New Method of Rapid Fluid Resuscitation During Thoracotomy Performed in the Emergency Room**

SAMELSON SL, ROBIN AP, MERLOTTI GJ, ET AL

*Surgery, Gynecology & Obstetrics* 165:175-176, 1987

A new technique for infusing massive quantities of fluid during open chest resuscitation is described from the experience of the Trauma Unit of the Cook County Hospital. Their open chest technique usually includes left anteriolateral thoracotomy and direct control of the injury or aortic cross-clamping. A foley catheter is then inserted into the right atrial appendage through a small stab wound. Tissue is cinched around the Foley by purse string suture. This purse string suture has been prone to atrial tears, leaking, slippage of the catheter and time delays. Their new technique replaces the purse string suture with a standard umbilical cord clamp, with a hole drilled through the jaws to fit around the diameter of the Foley catheter. The wound is quickly sealed without catheter movement, leaks or interference with other procedures. A gentle twist of the clamp with a hemostat releases the clamp for removal of the catheter and repair of the atriotomy following successful resuscitation.

### **Facilitated Intravenous Access Through Local Application of Nitroglycerin Ointment**

ROBERGE R, KELLY M, EVENS, TC, et al

*Annals of Emergency Medicine* 16:546-549, 1987

Peripheral venous access is often difficult in an emergency setting due to small veins, particularly with elderly and obese patients. A blinded and randomized study was conducted to determine if topical application of nitroglycerin ointment would improve IV access in emergency department patients with small veins on the dorsum of the hand. All IV attempts were

performed by ED physicians and nurses. The baseline diameter of the vein to be cannulated was measured before and two minutes after application of a quarter inch of ointment which contained either bland or nitroglycerin ointment. In the 34 patients of the study, 16 received bland ointment. 50% (8) of the bland ointment cases required more than one IV attempt. Of the 18 patients who received the nitroglycerin ointment, only 17% (3) required a second attempt ( $P=.04$ ). Bland ointment cases had increases of vein diameter of no more than twice their original size while nitroglycerin cases increased by two to six times original diameter. No adverse effects were observed in any cases who received nitroglycerin ointment. This study demonstrates that locally applied 2% nitroglycerin ointment on the dorsum of the hand significantly improves the success rate for IV cannulation, without adverse effects.

Request reprints from: Raymond Roberge, MD, Division of Emergency Medicine, University Hospital of Jacksonville, 655 W. 8th St., Jacksonville, FL 32209

### **Are Rotating Tourniquets Useful for Left Ventricular Preload Reduction in Patients with Acute Myocardial Infarction and Heart Failure?**

ROTH A, HOCHENBURG M, KEREN G, ET AL  
Annals of Emergency Medicine 16:764-767, 1987

A study was conducted in 12 patients, 12 to 24 hours after admission, with their first MI and congestive heart failure as suggested by new onset of dyspnea and a PAWP >15 mm Hg. All subjects were clinically stable for at least 12 hours prior to research data acquisition. Using blood pressure cuffs as rotating tourniquets, subjects were hemodynamically monitored from baseline to cuff pressures of 30 mm Hg for 15 minutes, then 15 minutes without cuff pressure to return to baseline, and finally to cuff pressures of 60 mm Hg for 15 minutes. There were no statistically significant changes in hemodynamics or blood gases during the experiments. None of the patients reported any subjective improvement in dyspnea. The authors conclude that rotating tourniquets are an outmoded procedure and should no longer be utilized in the treatment of congestive heart failure secondary to myocardial infarction.

Request reprints from: Shlomo Laniado, MD, Chief, Division of Cardiology, Ichlov Hospital, 6 Weitzman St., Tel Aviv, Israel

### **Multiple Dose Activated Charcoal for Theophylline Poisoning in Young Infants**

SHANNON M, AMITAI Y, LOVEJOY FH  
Pediatrics 80:368-370, 1987

Repetitive nasogastric administration of activated charcoal has demonstrated efficacy with increased clearance and reduced half-life of ingested and intravenous agents, by a GI dialysis in which toxins are drawn into the gut, bound with charcoal and removed with the stool. However, there was little experience with this technique in small children. The authors present 5 cases of theophylline and aminophylline overdose in infants between 2 weeks and 5 months of age. All overdoses were due to errors in medication calculation or administration of a ten fold magnitude. Age and weight of the patients were not found to be limitations for safe and effective use of the technique. This method appears to be an alternative to hemodialysis and hemoperfusion. While the study was conducted with theophylline toxicity, the method should be useful for overdose on other agents such as phenobarbital and aspirin.

Request reprints from: Michael Shannon, MD, Massachusetts Poison Control System, 300 Longwood Ave., Boston, MA 02115

### **Plasma Atropine Concentrations Via Intravenous, Endotracheal, and Intraosseous Administration**

PRETE MR, HANNAN CJ, BURKLE FM  
American Journal of Emergency Medicine 5:101-104, 1987

The time to reach and actual level of peak plasma atropine concentrations were measured following intravenous (IV), endotracheal (ET) and intraosseous (IO) administration in a group of six macaques. Time to peak concentration was shortest with the IV route (1.37 min, SE=0.26), followed by IO (3.87 min, SE=0.86) and ET (9.62 min, SE=2.60) routes. Mean plasma concentrations were significantly higher for the IV route at 1.25 min after administration, but IO levels exceeded IV and ET levels at 5, 15 and 30 minutes. The authors conclude the IV route has the shortest time to reach peak plasma atropine concentration, but total concentration levels were later exceeded by the IO route. Additional dose-response studies are needed to determine optimal therapeutic dosage for the ET and IO routes.

Request reprints from: Mark Prete, MD, Department of Emergency Medicine, Madigan Army Medical Center, Tacoma, WA 98431