PROGRESS IN THE TREATMENT OF POLYTRAUMA OVER THE PAST TWENTY YEARS ASSOCIATED WITH ALCOHOL IN YOUNG ROAD USERS

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INTRODUCTION

Trauma is no respector of individual organs or societal arrangements. Polytrauma damages multiple structures, disrupts integrated physiological systems, strikes at inconvenient times in unexpected places, and compels us to restore anatomical and functional integrity as best we can. Possibly the greatest (albeit unglamorous and unexciting) advance of the past 2 decades has been the development of an organized, preplanned, and intelligent network of people, transport, and facilities.

MATERIAL AND METHODS

Our experience based upon 800 patients with polytrauma associated with alcohol in young road users over the past twenty years.

RESULTS

Considerable progress has been made in many diverse ways: (A) Recognition has been given to the need for rapid transport of the patient to a trauma unit that is equipped with a multidisciplinary team and facilities appropriate to the patient's lesion. (B) Emergency medical services with well-trained personnel have been developed. These emergency medical technicians can intubate the patient at the site of injury, prevent aspiration, sustain adequate ventilation, recognize and (up to a point) treat cardiac arrhythmias, apply MAST suits, obviate iatrogenic injury of the spinal cord, and splint fractures. One may add parenthetically that there has been an overdue recognition of the significant talents inherent in responsible nonphysicians. (C) Well-equipped transport has been specifically designed for the injured—ambulances, helicopters, and planes—and the use of telemetry to permit central control has been extended.
With skilled pre-hospital care, patients more often arrive in the emergency department alive than in the past, and in better condition. An important added factor has been the development of critical audits which examine on a regular basis avoidable morbidity and mortality in all injured patients so that experience is not based on doing the same thing wrongly over and over again.

The emergency hospital or department of most hospitals is now staffed by nurses, paramedics, and physicians who are well trained in the techniques of cardiac resuscitation and the restoration of blood volume. Surgeons have come to appreciate the urgency of establishing the appropriate therapeutic priorities, both immediate and long term.

The more immediate causes of death are still impaired ventilation and hemorrhage. Familiarity with the techniques needed to establish an airway by endotracheal intubation or by cricothyrotomy or tracheostomy when necessary is now widespread. The recognition of a life-threatening potential pneumothorax or pericardial tamponade is increasingly made on clinical grounds—without a delaying preliminary radiograph in urgent circumstances. Rapid infusion of crystalloid through several large intravenous cannulas has been universally accepted as a primary need, and the restoration of intravascular volume and the primacy of the intravascular volume are accepted.

The use of ventilators and controlled positive end expiratory pressure has become standard under selected conditions and the placement of a central venous pressure line or pulmonary artery flotation catheter is now widely used. This latter development has permitted assessment of cardiac performance, the response of this performance to a variety of inotropic drugs, and the measurement of cardiac output and oxygen consumption. These data have all played important roles in manipulating the respiratory and hemodynamic effects of massive injury, especially in conjunction with pharmacomodulating drugs such as nitroprusside (alcohol etc.) and a variety of catecholamines.

The second greatest immediate threat to life in the markedly injured patient is sepsis. The place of antibiotics has gradually been put into perspective.
Their value in open fractures and penetrating wounds of the bowel, when given early and in appropriate dosage, is well recognized, but so are their limitations as a substitute for a thorough operation. Increasingly, potential nephrotoxic and adverse hematological effects have become clearer so that the use of antibiotics is much less abused than in the past. The appreciation of occult sepsis as a cause for systemic symptoms, especially respiratory, has increased our sensitivity to the need for relentless pursuit of the hidden abscess site. The use of ultrasonography and computed tomography (CT) scanning has given significantly better results than isotopic scans and standard radiographic techniques provided in the past.

Above all, the fact that pus must be drained even if this should require daily operation is universally accepted. We have, in fact, reached the point of beneficially leaving the peritoneal cavity open on occasion. Similarly, the principles governing wound healing are much better understood and the decision to leave the skin and subcutaneous tissue open has become standard practice in contaminated operations.

The new technology has also had a decided impact. For example, the diagnosis of intracranial collections of blood has been accelerated by the CT scan. The broader use of the Glasgow Coma Scale (or one of its variants) as a clinical tool has focused increased attention on the problem of head injury and has improved the immediate and long-term results. Technology, through angiography, has also enhanced our diagnostic acumen in the diagnosis of tears of the thoracic aorta and in other vascular injuries. Catheter embolization has proven invaluable in the management of selected lesions such as bleeding from pelvic fractures, hemobilia, and other complex situations.

With diagnosis more rapidly and accurately made and surgical skills increasingly refined by experience in improved training programs, a greater number of patients now leave the operating room alive. The next area of advance has occurred in the surgical intensive care unit. Surgeons today are much better versed in critical care than their predecessors and are trained to view the patient as a series of integrated organ systems, the functions of which may be observed and tracked.
in physiological terms. Long-term projections that affect therapy are made early on, obviating subsequent disaster.

SUMMARY
A sense of balance among the various specialties seems to have emerged. There is almost universal recognition of the vital need for a single surgeon to be in charge of the patient and the acceptance that he or she should be well trained in the broad spectrum of complex changes that inevitably occur in the patient with polytrauma. With the recognition that brain injury, hemorrhagic shock, cardiopulmonary failure, and sepsis are our patients' greatest enemies, and that oxygen consumption and nutrition are essential to recovery, surgeons have focused their attention on these factors in the past 2 decades with considerable success—but not enough to permit any self-laudatory relaxation!

REFERENCES


