Definitive Care for Trauma Patients in a Developing Nation

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Abstract

Trauma care management is in a phase of evolution in India, a developing nation. The incidence of trauma related deaths has almost doubled during last decade. Many of these deaths are occurring as a result of poor decision and inappropriate interventions. We believe that most of the trauma cases can be managed effectively with existing resources in a developing nation and General Surgeons will have central role in making it successful.

Introduction

Hundreds of thousands are injured on our roads, some of whom become permanently disabled. The vast majority of these occur in developing countries. Emergency services and trauma care is a neglected area in India. The lack of infrastructure, knowledge and initiative leave these patients unattended and under-served in the cases of calamities, accidents and disasters. Most if not all victims are in the 15-45 age-group: the most productive segment of our people. Many of these patients die even after reaching to the hospital because of inappropriate interventions. Head injury is one of the major causes of trauma-related death and disability worldwide. Minimization of secondary brain injury through the maintenance of cerebral perfusion and oxygenation is an essential goal as most (65%) of the mortality from head injury is associated with secondary brain injury. 20-25% deaths occur due to chest injury and additional 25% deaths due to complications related to chest. 85% of chest injury can be managed without major surgical intervention. Significant abdominal trauma is present in 12–15 % of trauma patients and usually occurs in association with multisystem injury. Immediate management of such injuries requires care of impending or existing upper airway compromise and/or profuse hemorrhage. The definitive management of bone and soft tissue injuries should be deferred until life threatening injuries have been properly managed. The outcome depends upon the severity of injury, concomitant systemic injury, prompt and multidisciplinary management. Protocols have shifted their emphasis away from aggressive fluid resuscitation to surgical control of haemorrhage. There is no doubt that availability of ultrasonography and computerized tomography has improved the outcome of trauma management. However, most of the goals of trauma management is still achievable even without these investigation.

Our Experience:

In our institution, a tertiary care hospital, almost 50 percent of surgical emergency admissions are of patients with severe trauma. In our hospital trauma patients are primarily managed by General Surgeons with support of Anesthesiologists. Significant abdominal trauma is usually present in 20% of trauma patients and occurs in association with multisystem injury. Majority of trauma patients are managed conservatively. Those who die during first few hours following admissions have significant intra-abdominal organ injury and actually remain unattended at the site of accident for a considerable period of time. The patients who get operated have refractory hypotension in the absence of visible blood loss and don’t respond to fluid challenge during first few hours. The line of management of blunt abdominal trauma is primarily guided by the haemodynamic status of the patient at the time of presentation in emergency department and during first few hours and findings on ultrasonography [Focused Assessment by Sonography for Trauma]. Spleen is the most common intra-abdominal organ injured due to trauma, followed by liver. Injury to the bowel is infrequent. The extent of bowel injury can range from focal mural hematomas to complete transection. Injury more commonly involves the duodenum, primarily the second and third segments. We have encountered two cases of duodenal perforation and equal no complete transaction at duodeno-jejunal flexure following road traffic accidents. Colonic injury is less common than duodenal or small bowel involvement. Rectal injury with or without per rectal bleed is common associated injury, often missed during initial assessment. Out of six cases of rectal injury twice we missed it during initial evaluation. We have come across significant number of cases of urinary tract injuries. Urethral injury with haematuria with or without bladder injury is invariably seen in cases of significant pelvic fracture.[1] Only once we got a case of significant renal trauma where surgical intervention was performed due to refractory hypotension. In our study
of liver injury, exploratory laparotomy was performed for hemoperitoneum (1200–2500 ml, mean: 1739.29 ml) and grade III to grade V liver injury. Those patients who underwent surgery usually required 3-5 units of blood transfusion during first 24 hours and their hospital stay was 9–15 days. Those patients, who were managed non-operatively, had grade I or II organ injury, hemoperitoneum was less than 900 ml and less than three units of blood were transfused. There has been a significant association between line of management and volume of hemoperitoneum and number of blood transfusion. [2]

Discussions and Conclusion

Trauma outcomes have improved following the advance trauma life support program. [3] Pre-hospital care is almost non-existent in most of the developing countries. Transfer time to definitive care facilities is too long. There is an urgent need to establish and strengthen pre-hospital care. [4] We are in a phase of transition where Trauma Surgeons are evolving out of General Surgeons as they are the one who manage these cases in a referral centre. Despite dearth of trained manpower, infrastructure and modern equipments, most of the trauma patients are managed on the basis of clinical parameters by general surgeons. [5] It is essential to share our clinical experiences in order to evolve a consensus on definitive care. Effective and optimal management of head and neck is no possible without computerized tomographic (CT) scan. Requirement is a little different when it comes to the management of blunt abdominal trauma. Irrespective of the presence or absence of an indication, it has been observed that fewer than half of abdominal trauma patients are in a condition which allows diagnosis by CT. However, radiologic examination is of paramount importance and should be performed to identify and classify the injury and to plan surgical repair, but should not hinder hemodynamic stabilization of the patient. Prompt surgical intervention with principles of damage control surgery is crucial for optimal outcome in haemodynamically unstable patients.

References

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