

## Challenges in the Management of Polytrauma in Pakistan

Polytrauma is an escalating healthcare concern globally and is frequently associated with motor vehicle accidents, violence, natural disasters, and terrorist activities, leading to injuries involving multiple organ systems.<sup>1,2</sup> Patients suffering from polytrauma require a multidisciplinary approach encompassing pre-hospital care, emergency services, surgical intervention, and rehabilitation. This editorial highlights the key challenges faced in managing polytrauma in Pakistan and explores future directions for improvement, emphasizing the need for rapid, accurate, and evidence-based interventions.

### **Burden of Polytrauma and Psychological Consequences in Pakistan**

Pakistan ranks among the top twenty countries with the highest burden of road traffic accidents (RTAs), significantly contributing to polytrauma cases.<sup>3</sup> According to the World Health Organization (WHO), approximately 27,000 individuals lose their lives annually in road accidents in Pakistan, with many more suffering from long-term disabilities.<sup>3</sup> In addition, occupational injuries, aggravated violence, and natural disasters further contribute to the increasing number of trauma cases. However, the absence of an integrated trauma care system exacerbates morbidity and mortality rates. Psychological distress, including post-traumatic stress disorder (PTSD) and depression, remains a neglected consequence of polytrauma, affecting survivors' quality of life.<sup>4</sup>

### **Emergency Medical Services (EMS) and Pre-Hospital Care**

One of the major gaps in polytrauma management in Pakistan is the inadequacy of emergency medical services (EMS) and pre-hospital care. Effective trauma management necessitates

immediate interventions such as airway stabilization, hemorrhage control, and rapid transportation to specialized trauma centers.<sup>5</sup> However, Pakistan's EMS system is underdeveloped, with most ambulances lacking advanced life support (ALS) equipment and trained personnel.<sup>6</sup> In many cases, ambulances are used as mere transport vehicles rather than mobile emergency care units, significantly reducing the chances of survival. Addressing this issue requires investment in EMS infrastructure, standardized pre-hospital care training, and implementation of national response protocols.<sup>6</sup>

### **Lack of Trauma Centers and Infrastructure**

Optimal management of polytrauma patients necessitates well-equipped trauma centers with multidisciplinary capabilities. Unfortunately, Pakistan has very few dedicated trauma centers, with most located in major metropolitan cities such as Karachi, Lahore, and Islamabad.<sup>7</sup> This geographical disparity creates significant delays in receiving definitive care, particularly for rural populations where the majority of high-risk injuries occur. Additionally, the lack of a national trauma registry hinders data collection and evidence-based policy development.<sup>7</sup> Establishing regional trauma centers and integrating trauma care into existing healthcare infrastructure is imperative to bridging this gap.

### **Shortage of Trained Human Resources**

The effective management of polytrauma relies on a skilled healthcare workforce, which remains a critical challenge in Pakistan. There is a severe shortage of trauma surgeons, emergency physicians, anesthetists, and paramedics. A study conducted in Punjab revealed that only 30% of emergency department (ED) person-

nel had adequate trauma training, highlighting a significant skills gap.<sup>8</sup> The absence of structured training programs and continuing medical education (CME) further exacerbates this issue. Strengthening medical education by integrating trauma-focused curricula and enhancing professional development opportunities is essential for improving polytrauma care.

### **Delayed and Inadequate Surgical Interventions**

Timely surgical intervention is crucial for polytrauma patients, particularly those with head, thoracic, and orthopedic injuries. However, surgical delays due to overcrowded hospitals, inadequate operating rooms, and inefficient referral systems contribute to poor patient outcomes.<sup>9</sup> Public sector hospitals, which cater to the majority of trauma patients, often operate beyond capacity with limited resources.<sup>9</sup> Addressing these deficiencies requires strategic investments in hospital infrastructure, workforce expansion, and streamlined referral networks.

### **Deficiencies in Post-Trauma Rehabilitation and Mental Health Support**

Post-trauma rehabilitation remains an overlooked aspect of polytrauma management in Pakistan. Many survivors experience long-term disabilities requiring physiotherapy, occupational therapy, and psychological counseling. However, rehabilitation centers are scarce, and trained rehabilitation professionals are in short supply, particularly in rural areas.<sup>10</sup> Additionally, mental health support services for trauma survivors, including PTSD and depression management, are grossly inadequate.<sup>10</sup> Integrating rehabilitation and psychological care into trauma recovery protocols is essential for improving long-term patient outcomes.

### **Strategies for Improvement**

#### **1. Strengthening Emergency Medical Services (EMS) and Pre-Hospital Care**

- Investment in ambulances equipped with ALS capabilities.
- Comprehensive training programs for paramedics and emergency responders.

- Establishment of a unified national emergency helpline for efficient ambulance dispatch.

#### **2. Expansion of Trauma Facilities and Infrastructure**

- Development of regional trauma centers to ensure equitable access to specialized care.
- Integration of trauma care within existing healthcare systems, with a focus on rural areas.

#### **3. Enhancement of Medical Training and Education**

- Inclusion of structured trauma education modules in medical and paramedical curricula.
- Regular CME sessions for healthcare professionals involved in trauma care.
- Collaboration with international trauma organizations for skill development and knowledge exchange.

#### **4. Financial and Insurance Reforms**

- Implementation of government-supported insurance schemes for trauma victims.
- Subsidized emergency care policies for economically disadvantaged populations.

#### **5. Standardization of Trauma Protocols and Data Collection**

- Establishment of a national trauma registry for research and policy formulation.
- Adoption of standardized trauma care guidelines across healthcare institutions.

#### **6. Improvement of Post-Trauma Rehabilitation and Mental Health Services**

- Expansion of rehabilitation facilities and incorporation of physiotherapy into trauma care.
- Implementation of psychological support programs for trauma survivors.

### **Conclusion**

Polytrauma management in Pakistan faces significant challenges, including inadequate pre-hospital care, insufficient trauma infrastructure, financial constraints, and a lack of specialized

personnel. Addressing these issues requires a comprehensive, multidisciplinary approach that includes strengthening EMS, expanding trauma care facilities, standardizing treatment protocols, and improving accessibility to financial and psychological support. Collaborative efforts between governmental bodies, healthcare institutions, and international organizations can significantly enhance trauma care and reduce the morbidity and mortality associated with polytrauma.

**Dr Syed Jehanzeb**

MBBS, MD Emergency Medicine

ER Physician

Baqai Medical University Hospital

**References:**

1. Prokazyuk AA, Zhanaspaev MA, Aubakirova SK, Musabekov AS, Tlemisov AS. Polytrauma: Definition of the problem and management strategy. *Gen Reanimatol.* 2022;18(5):78-88.
2. Iyengar KP, Venkatesan AS, Jain VK, Shashidhara MK, Elbana H, Botchu R. Risks in the management of polytrauma patients: clinical insights. *Orthop Res Rev.* 2023;15:27-38.
3. World Health Organization. Road Traffic Injuries in Pakistan: A Public Health Perspective. WHO Report 2021.
4. Iqbal M, et al. Psychological impact of polytrauma on survivors in Pakistan. *J Coll Physicians Surg Pak.* 2019;29(5):312-6.
5. Javed M, et al. Prehospital care and challenges in trauma management in Pakistan. *J Pak Med Assoc.* 2020;70(3):453-7.
6. Ahmed S, et al. Trauma training among emergency department staff in Punjab: A cross-sectional survey. *Ann King Edward Med Univ.* 2021;27(2):89-95.
7. Khan A, et al. Distribution of trauma centers in Pakistan: A need for policy reform. *Pak J Surg.* 2019;35(1):12-8.
8. Zafar H, et al. Delays in surgical interventions for trauma patients in Pakistan: An observational study. *Int J Surg.* 2021;8(1):102-7.
9. Iqbal M, et al. Psychological impact of polytrauma on survivors in Pakistan. *J Coll Physicians Surg Pak.* 2019;29(5):312-6.