

The Leadership Role of Surgeons in Disaster Management

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As India moves from the developing world towards becoming a powerful and ‘shining’ India, we still have to deal with stampedes every other month, phenomena that should have been restricted to the animal world. Then, we have terrorist bombings of Indian cities, which have changed the way cities function by making citizens insecure. India has the occasional natural disaster, to which we promptly respond. There is outpouring of sympathy and aid to the affected area, and being a large nation, no disaster, no matter how large, is able to overwhelm us for too long. We are a resilient nation, and we bounce back quickly.

Love and Bailey’s textbook of surgery has dedicated a complete chapter to disaster surgery. This is appropriate, as surgeons have a natural ability to lead teams, and an emergency situation is where a surgeon is able to demonstrate controlled decision making under stressful conditions.

However, technically operating in disaster zones is not the same as working in our usual workplace. Typically, surgeons function in the comfort of a very hierarchical and controlled structure of a well-equipped hospital and are often at a loss when pulled out suddenly into the field or war situation. Often, the surgical competence displayed at the field level is alarmingly inappropriate to the context. Surgeries usually performed in tertiary care settings (e.g. open reduction and internal fixation) are usually inappropriate in the field setting. Here, skills of external fixation are required, and these are being lost rapidly in the day-to-day practice setting. Missed injuries are common, irrespective of the seniority of the surgeon. Debridement, leaving wounds open after thorough lavage and delayed definitive treatment have better outcomes.

Another common occurrence in disasters is the ‘mass casualty’ situation, which is not common in a surgeon’s daily practice. One patient at a time is our normal comfort zone. But, when we suddenly have a number of patients coming in together, triage is required, and this requires practice. Maximum good for the maximum number of patients in the shortest time with available resources is the principle of triage. Disaster research reveals that overtriage (labelling a patient as being more critical than he is) is common and is more likely to lead to increased mortality than undertriage. These findings reveal that our natural instincts may not necessarily lead to better outcomes, in the face of multiple casualties and in the out-of-hospital setting. Triage is appropriately done by senior surgeons, and the surgeries are essentially simple. As seen in the surgeries performed after the London blasts, there was a higher negative laparotomy rate, reflecting a need for a different protocol for multiply injured patients [1].

A lot of the deaths are blamed on an absence of pre-hospital care and ambulance services in India. However, it has been amply demonstrated that after disasters like the London bombings and Tokyo subway Sarin attack, ambulance services are very quickly overwhelmed or simply bypassed in the disaster setting, and victims choose any available transport to reach the hospitals. This health-seeking behaviour also causes a surge of patients and overcrowding of the casualty at the nearest hospital [2, 3]. This is particularly important in terrorist bombing incidents, as the terrorists often plant a secondary bomb with a delay timer to go off in the casualty (as in the Ahmedabad Civil Hospital incident of 2008). There is an increasing threat of improvised nuclear devices and of dirty bombs laced with radioactive material, which combine the primary blast injury with the concern of radiation.

The usual ratio of the killed and the injured after disasters is 1:3. So, usually, there is plenty of work for surgeons following disasters. However, disasters like the tsunami killed more people, and there were very few injuries. The

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Asian tsunami of 2006 taught us that we were not prepared for the ‘mass fatality’ situation. The public judge physicians not only in their ability to treat the living injured, but also by the respect with which dead bodies are cared and disposed of, after identification. A ‘mass fatality’ plan must accompany the ‘mass casualty’ plan, and specialized teams are required to look after each. Also, there is a need for communication skills to convey difficult news and guarded outcomes in simple language and appropriately.

In the final analysis, each disaster, be it man made or natural, is a huge financial loss to the country. It is seen that losses due to natural disasters are 20 times greater (as a percentage of GDP) in developing countries than in industrialized countries. Also, 95 % of disaster-related deaths take place in developing countries.

As our country progresses, it is imperative that we start moving towards primary prevention, whether we deal with injuries due to road traffic accidents or disasters. The current mantra is search and rescue. We can achieve better surgical outcomes by good preoperative planning (building up the respiratory system with chest physiotherapy and cardiovascular system by regular exercise), good control of intraoperative bleeding and good postoperative care. Similarly, we can plan scientifically for disasters and prepare in the pre-event phase (e.g. early warning systems for natural disasters and injury prevention), during the event (bystander assistance, use of protective equipment) and post-event phase (rehabilitation, physiotherapy and mental health services).

In keeping with this national agenda of preparedness, as mandated in the Disaster Management Act (2005), the Maharashtra University of Health Sciences (MUHS) has launched a comprehensive education and training strategic

plan for capacity building in disaster medicine. At the basic level is community education and training of bystanders. The Nasik KumbhMela to be held in 2015 will have 20,000 bystanders trained in basic rescue and life support. The next higher level will deal with other professionals, like police and firefighters, which is due acknowledgement that disaster management is multidisciplinary team work. A subgroup of MUHS health science graduates, will be offered a certificate course in disaster medicine and enlisted as the Quick Medical Response Teams. Finally, an elite group of disaster medicine professionals, metaleaders and health policy specialists will be trained as the ‘top of the pyramid’ experts. A school of disaster medicine has been established by most medical universities overseas, and in collaboration with international collaborators, the MUHS has planned to launch the first such school in India.

References

1. Aylwin CJ, König TC, Brennan NW, Shirley PJ, Davies G, Walsh MS et al (2006) Reduction in critical mortality in urban mass casualty incidents: analysis of triage, surge, and resource use after the London bombings on July 7, 2005. *Lancet* 368(9554):2219–25, <http://www.ncbi.nlm.nih.gov/pubmed/17189033>. Accessed 10 Apr 2013
2. de Ceballos JPG, Turégano-Fuentes F, Perez-Diaz D, Sanz-Sanchez M, Martin-Llorente C, Guerrero-Sanz JE et al (2004) The terrorist bomb explosions in Madrid, Spain—an analysis of the logistics, injuries sustained and clinical management of casualties treated at the closest hospital. *Crit Care* 9(1):104–11, <http://www.ncbi.nlm.nih.gov/pubmed/15693992>. Accessed 10 Apr 2013
3. Deshpande A, Mehta S, Kshirsagar N (2007) Hospital management of Mumbai train blast victims. *The Lancet* 369(9562):639–40, <http://www.ncbi.nlm.nih.gov/pubmed/17321304>. Accessed 10 Apr 2013