Chapter - 14

HOW TO HELP ACCIDENT VICTIMS

Trauma care for the road accidents victims is the most important aspect of road traffic. This is the one aspect where not just commuters and drivers but every one of us should pay attention. This discussion has been divided into three sections. Firstly, I will discuss as to what is the actual care that a road accident victim really deserves, then about the ground reality or the present situation of trauma care in India and lastly what exactly is expected from the government and the society to improve care of such victims.

EXPECTED TRAUMA CARE FOR ACCIDENT VICTIMS

The management of the road accidents victims can be divided into two parts: [1] pre-hospital care and [2] treatment or care in hospitals.

[I] Pre-Hospital Trauma care

What should we do at the accident site? This basically includes an attempt to rescue the injured from the accident site, call for a help, provide first aid and arrange for transfer of the injured for a definitive care. This help can be provided by co-passengers, bystanders, other drivers, dhaba owners, police, villagers, etc. We don't expect trained paramedics or an ambulance immediately [within few minutes] so the role of the people just mentioned or the first responders, even if they are not trained, cannot be overemphasized. Bystanders should not feel inhibited to help due to fear of some legal hassles or actions.

Step 1: Rescue the victim: It basically means to remove the injured person or persons who are trapped either inside or under the vehicle or lying on the road so that the much-needed first aid can be given and also to prevent any further trauma by other moving vehicles on roads. Sometimes, an unusual situation like a vehicle catching a fire or plunging into water or slipping into a ravine can arise requiring other emergency services also. This rescue work can be initiated by any one and does not require any medical background.

Step 2: Call for emergency help: Make a call for an ambulance or for patrolling or local police and to the relatives of the injured by checking his identity. In India, calling the police to the accident site is equally

important as that of an ambulance. The reason is that the public reaction may be hysterical after some accident, so controlling the crowd can be an important job in such situations.

Step 3: Start providing some first aid till formally trained para medical personnel come. If no ambulance or health facility is expected at the site then don't wait and arrange some transportation to rush towards a hospital.

Precautions by accident victims that ensure better aid: In such situations the following precautions or preparations are very helpful to help accident victims.

1. Keep the vital information readily available, e.g. important telephone numbers, name and address, information regarding medical insurance, blood groups, any history of major diseases and drugs that are used for it, phone number of some ambulance, etc. This information can be kept inside the purse, along with documents of the vehicle, on a sticker on the dashboard or in the mobile phone. Any one including you, co-passengers or rescuers can easily use it and would enable to provide medical treatment to accident victims within the "golden hour".

2. Keep An Emergency Kit: Planning ahead for danger can make the difference between life and death. Besides a first-aid kit and tool kit, some more items may be of great help in such situations e.g. emergency light, fire extinguisher, large screwdriver, pair of pliers, rubber hammer, pointed iron rod to unlock the jammed door, flash light, extra batteries, etc.

[A] The First Aid

As per the definition, first aid is defined as the initial medical help to an injured person at the accident site and during the transfer till a definitive medical help is available or the casualty recovers. The purpose of first aid is to prevent deterioration in the condition and to maintain the vital functions during this period. The first hour after the trauma is called the 'golden hour'. Even in this golden hour it is the initial four to five minutes [called platinum period] that are very critical. If proper first aid is available, road accident victims have a much greater chance of survival and a reduction in the severity of their injuries. First Aid in the first hour after the accident can increase the survival chances by 70%.

The description that follows is basically for the non-medicos or primary responders [commuters, laymen, bystanders, etc]. A detailed discussion of these actual measures from the point of view of paramedical

staff is beyond the scope of this book and I suppose that needs a formal training with the detailed text. Remember, don't hesitate in such a situation on the premise that your knowledge is very poor in this regard and you fear that you might do harm to the injured. Remember the only fact that your intentions are the best, you are the only one around him to help and something is always better than nothing and this 'something done for' can really save someone's life.

I am not going to discuss what is being done in developed countries or is to be done ideally, instead what is practically feasible in our circumstances. We start dealing with the most severe conditions towards the less severe one. Secondly, here we would discuss more dealing with some serious injuries and as to deal with minor wounds or cuts, we assume every one of us is used to in our daily life.

1. Ensure Vital Functions of the injured: The very first aim or priority of first aid is to ensure or establish clear Airway, Breathing and Circulation [ABC]. Look for consciousness, breathing and pulse of the injured. If there is no respiration and heart/pulse then start immediately a Cardiopulmonary resuscitation (CPR). Take the person on some hard floor and put him on his back. CPR involves two activities: chest compressions along with mouth-to-mouth breathing. Place the heel of one hand over the center of the person's chest, between the nipples. Place your other hand on top of the first hand. Keep your elbows straight and position your shoulders directly above your hands [figure A]. Use your upper body weight (not just your arms) as you push straight down on (compress) the chest for two inches. Push hard and push fast: give 100-120 compressions per minute. Put your palm on the person's forehead and gently tilt the head back. Then with the other hand, gently lift the chin forward to open the airway [figure B]. Kneel next to the person's neck and shoulders. Pinch the nose and breathe into the mouth for one second [one after every four to six chest compressions][figure C]. Continue CPR until there are signs of improvement or until emergency medical personnel take over.

Remember, time is very critical when we are helping an unconscious person who isn't breathing as within a few minutes of the stopping of heart, irreversible brain damage can occur. The most common causes of immediate deaths after accidents i.e. with in few minutes or in first hour or during transportation are respiratory arrest, excessive bleeding both external and internal and injury to vital organs like brain.

2. Choking or respiratory obstruction: Choking or blockage of the

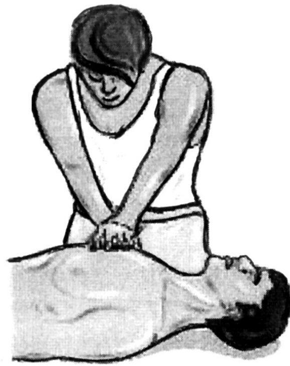

Figure - A

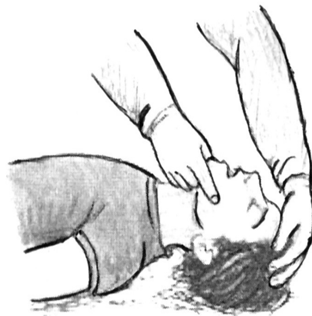

Figure - B

Figure - C

airway or throat is a frequent complication after an accident. The cause of this choking may be aspiration of the recently ingested food, blood trickling down from the mouth or nose, broken teeth or any food items present in the mouth at the time of accident [pan, gutkha, chewing gum, etc]. If the obstruction of the airway is complete, death can occur within few minutes. The chances of death increase if the injured is unconscious, as he is not able to spit or cough it out. To clear the choking, turn the injured on the side with head end a little low so that blood or other contents come out with gravity. It will also relieve any tongue fall that frequently aggravates the choking in an unconscious patient. If it is a complete obstruction owing to the presence of some material inside the wind pipe, then use the Heimlich maneuver where you give five quick upward thrust over the upper abdomen above the umbilicus. If still it is not cleared and the person remains choked, then start cardiopulmonary resuscitation (CPR). Sometimes chest compressions used in CPR may dislodge the material from the trachea.

3. Bleeding Wounds: After ensuring a proper cardio-respiratory function, look for any wounds or external signs of injuries. If there are multiple wounds, priority should be given to those that are bleeding profusely. In such cases the best way is to apply a direct pressure over the wound by hand with the help of a clean piece of cloth. Usually it requires more pressure than we usually expect, so instead of fingers, use heel of the palm for the pressure. Maintain this pressure for sufficient time as usually it takes 4-5 minutes to stop. So do not look frequently to confirm that bleeding has stopped or not as this may dislodge the fresh clot that has just formed and cause rebleeding. Instead, wait patiently. Sometimes it may even require 15-20 minutes. If it is a case of limbs or head, you can apply a tight bandage or clean cloth around it for sustained pressure. If still bleeding does not stop then instead of removing the dressing, apply more over it and try to rush to hospital.

4. Fracture: Fracture is the most common type of injury that we see in accidents [40-50%]. A fracture or dislocation in a limb is suspected when there is abnormal mobility, limb deformity, feeling of crepitus or grating due to movement between the two fractured segments of the bone. In fracture, even a slight movement causes disproportionate or severe pain. Sometimes the underlying fractured segment of the bone can come out after piercing the skin. Immobilization or the splinting of the fractured bone is the basic aim regarding first aid of fracture. One should not try to correct the alignment of the fracture instead do splinting with the help of some available wooden stick or metallic bar and apply a gentle pressure bandage.

In cases when a part of the limb is totally detached or amputated,

sometimes it is possible to join it with the body with the help of microvascular surgery. Collect this severed body part in a clean polythene bag but do not add water into it [if available, normal or isotonic saline [0.9%] may be used] and place this bag in another bag with cold water. The wound of the remaining limb on the body side may bleed profusely. In these cases tie a tourniquet just above the site of the amputation.

5. Chest or Abdomen injury: Open wounds of the chest can affect respiration severely by sucking in the air through the wound. It can be minimized by covering the wound with a piece of polythene and putting a bandage over it. This may help to reduce air being sucked into the chest. In abdominal wounds the intestines may come out. Don't try to push them back into place. Cover the wound with a wet clean cloth dressing. Don't remove any large or more deeply embedded objects. Don't probe the penetrating wound or attempt to clean it at this point. At present our principal concern is to stop bleeding.

6. Head Injury: It is the most common cause of mortality in road accidents. It should be suspected when there is a wound over the scalp and there are associated symptoms like convulsions, evidence of paralysis or weakness in limbs, deterioration in the level of consciousness, state of confusion, bleeding from the nose or ear, etc. When head injury is suspected, the patient should be kept in a lying-down position preferably turning to one side. In this position the vomitus or blood from nose or mouth would come outside and the chances of aspiration of it into the respiratory passage would be minimized. Keep a watch for any breathing irregularities, consciousness or any convulsions. In case of bleeding from inside the ear, instead of plugging the ear, get the injured to lie down with the injured ear facing down. If there is bleeding from the nose, this could be from injury inside the nose or due to head injury. A bleeding from the nasal injury usually stops when you pinch the tip of nose for a few minutes while bleeding due to head injury rarely responds to this maneuver.

In case of an eye wound, do not attempt any cleaning or washing of an open eye injury. Cover the eye with a clean soft cloth; place a stiff covering on top to counter any pressure coming on the eye. This is important because the contents can be squeezed out even through a very small wound.

7. Spine Injuries: Road accidents contribute 45-50% of the total spinal injuries. When someone has a spinal injury, additional movement may dislocate a vertebra causing further damage to the nerves in the cord and thereby can paralyse the lower part of body permanently. Thus the very basic aim in this situation is that we do not hurt him more

during resuscitation or shifting, by keeping the person immobile and safe until medical help arrives. Some precautions are:

[a] DO NOT move, bend, twist or lift the person's head or body even a little bit, unless it is absolutely necessary like surroundings or the vehicle in which he is trapped are not safe. Otherwise, wait for the trained medical personnel to arrive and handle the situation. Do not remove a helmet if a spinal injury is suspected. [b] In case he needs CPR, do not tilt the head back when attempting to open the airway. Instead, place your fingers on the jaw on each side of the head and lift the jaw forward. [c] If at all you need to move the person [e.g. choking by vomiting or blood], at least two persons are needed. One person should be stationed at the head, the other at the person's side. Move the person as if you roll the carpet i.e. the whole body is moved as a single block without any twisting or tangential movements. Keep the person's head, neck, and back in line with each other while you roll him onto one side. [d] For keeping the person absolutely immobile, place a tape across the forehead, and secure the person to a board to keep head, neck, and back areas from moving at all. Place rolled towels on both sides of the neck and body. While doing this, don't interfere with the person's breathing. If necessary, use both of your hands, one on each side of the person's head to keep the head from moving. [e] Extreme precautions are necessary while shifting such patients for the definitive treatment. There are three possible stages in shifting where abnormal movements can occur. These are: [i] taking out the injured from the vehicle to nearby place i.e. rescue [ii] taking from this place to ambulance [iii] taking him from ambulance to inside the hospital building.

(8) Shock: Shock or a fall in blood pressure after the injury is mainly due to excessive bleeding [external or internal] and due to severe pain. It is indicated by weakness, pale and cold skin, rapid and weak pulse and a low blood pressure. Breathing is shallow and rapid with sign of air hunger and the person shows overly excitement, looks anxious, confused, thirsty and feels fainting.

Look for the cause of the shock. The management of external bleeding has already been discussed. If you feel that in spite of adequate check on external bleeding the patient is still having or developing features of shock or low blood pressure, then look for internal bleeding. Have the injured person lie down and loosen the belt and tight clothing and cover the person with a blanket. If possible, position the person's head slightly lower than the trunk or elevate the legs. This position reduces the risk of fainting by increasing blood flow to the brain.

Whether to feed or not: This is a very common mistake that we allow the injured to drink water etc or keep on pouring water into the mouth at the site or during shifting. It is safer not to give the patient anything to eat and drink. Even if the person complains of thirst, give nothing by mouth. This is to protect the patient from vomiting in case he needs anesthesia for some surgery, or has a head injury. In an unconscious patient this water instead of going into the stomach can go into the respiratory passage and can choke it.

[B] Transportation of Victim to Hospital

The next course of action is the transport of the victim from accident site to an appropriate nearby hospital. If the ambulance team has already joined the rescuers, the team will make an arrangement for transport, once the job of giving the first aid is completed. If no ambulance services are expected to reach there and the condition of the patient is deteriorating, it is preferred to arrange some other transport. For this a van, bus or any vehicle having a long seat is preferred where there is enough space to keep the patient's back straight and the person accompanying should be able to care for and resuscitate the patients if necessary.

1. Shifting to ambulance: The patient should be carried on stretcher so that the spine remains stable. If a stretcher is not available, a hard board or ladder or a flat seat of a bus can be removed. While shifting, the patient's back, neck and airway need to be protected. So always take the help of other persons if needed. If the patient is unconscious, gently place a large folded cloth or towel under the neck so that the neck doesn't sag against the ground. If there are no evidences of internal injuries, head or spine injury, the patient can be shifted in a sitting position.

2. Care inside ambulance: Paramedical staff can continue the remaining part of resuscitation procedures or can administer other therapy required for it e.g. IV fluid line, oxygen, drugs, etc. Sometimes owing to the presence of crowd, inadequate light outside and better facilities inside van, you feel more comfortable in giving the first aid inside the ambulance. During transportation keep a watch over patient's breathing, pulse and blood pressure and if possible pulse oxymetry.

If the ambulance team is in contact with a hospital, it can inform them well in advance about the specialist/specialists who would be needed and also the preparation to be made when the patient arrives at the hospital. This is expected to help doctors match the timing to perfection. Even blood grouping can be done on the way so that the blood of the corresponding group can be arranged in advance. The drivers should avoid over-speeding as this may not only be a cause of another accident but also the bumpy ride can be risky for the injuries.

3. Choose a correct destination: Besides giving first aid, the pre-hospital care team should assess properly the severity of injury so that they can transfer the injured to a proper hospital according to the level of care required by the patient. Thus the team should also know about all nearby government and private hospitals in that region, not only in terms of distances but also regarding the level or quality of care available there. This will avoid an unnecessary referral from one centre to the other. Sometimes a case of serious or multi-system injuries, requiring a quality care with urgent surgical intervention, is first carried to a small centre where nothing more than the facilities of dressing are available and ultimately it has to be taken again to a better center causing loss of precious time.

On the contrary, a patient having minor injuries is taken to a highly specialized center for the treatment and that unnecessarily increases the burden on these centers owing to less important cases. Thus in cases of serious injuries or multiple injuries, instead of smaller, prefer to go for bigger hospitals even if they are situated a little far away. Simple wound cases or fracture of limbs or where the condition of the injured is quite stable can be taken to smaller centre.

[II] Definitive care at hospital

The two dire medical emergencies that I know are the delivery of a distressed baby and a severely bleeding trauma victim, where every minute or rather every second counts. That is why an in-house dedicated trauma care team is to be there for 24 hours. Their response time to the alert call/siren should be like that of defence personnel or commandos. There should be clear-cut strategy or drill for the management of trauma cases. Medical authorities in the city should honestly evaluate its efficiency regarding trauma care in terms of response time, quality care in severe cases, and dealing with a sudden load of very high number of victims.

(1) Primary or Emergency care: We cannot deny the importance or the role of many minor but extremely important procedures for saving trauma cases [e.g. intercostal intubation, endotracheal intubation, treating shock with blood and IV fluids, etc]. They can be performed with low priced equipment or facility, e.g. laryngoscope, endotracheal tubes, self-inflating bag, airways, suction apparatus, etc. It has been seen that many times it is not the availability or funds that is a problem but the lack of an organized approach or will instead.

(2) Specialized care: Comprehensive trauma facilities in hospitals under one roof are the cardinal requirement for the best results in dealing

with the serious trauma patients. The trauma of the accident victims varies widely involving a wide range of specialist [orthopaedic, general surgery, neurosurgery, thoracic and vascular, plastic surgery, etc]. Besides this, a tertiary level ICU care including ventilator and round-the-clock availability of investigations are extremely necessary if we really want good results.

The definitive care is purely a job of the specialists, so a detailed description is not necessary here. However, pre-hospital care is really an area where every one of us can contribute, that is why this has been discussed here in greater detail.

PRESENT STATUS OF TRAUMA CARE IN INDIA

This was mainly the 'theory part' that we have just discussed above and now we come to the ground reality in our country. If we really want to improve our trauma care we have to go into details to understand ground reality today. For every death that occurs in a road accident there are 15-16 persons who sustain serious injuries. So, considering the present death rate in road accidents as 1.15 lakhs per year, there are around 17-18 lakhs injured people needing emergency help and treatment annually in road accidents only. However, if we include all the trauma cases, this figure would be much higher and according to a study on the present status of trauma care in India, about 150 lakhs injured people expect trauma care in India annually.

Trauma care in India is still in an embryonic or nascent stage. Trauma care is neglected in most parts of the country and whatever there is, is very sub-optimal and mainly urban-oriented. Except in capital cities, in most of the districts the pre-hospital care, adequate hospital care including critical care facilities and availability of team of super specialists for polytrauma is virtually non-existent. Even in metros, so far as government health system is concerned, both the pre-hospital care and adequate hospital care are less than satisfactory. The fact is that at present, both at the Centre and a State level, there are no organized trauma care services or controlling units. Owing to this, the outcome in road accidents is extremely poor especially in the polytrauma or multisystem injuries. This is also reflected by the facts that mortality in India in serious accidents is six times greater than in developed countries and similarly the mortality rate per kilometer of travel is also seven times more than that in foreign countries.

It is an irony that in India a severely injured road accident victim lying in a pool of blood may fail to attract the attention of even a single person among the commuters or the spectators standing barely a few feet away, while on the contrary a struggling human life 70 feet deep in the bore well, may attract the attention of the whole nation. I don't

see any example worse than this to see such a discrepancy in attention and attitude of the Indian society as well as of the government towards human life. Similarly, in a terrorist attack or communal violence, even a few injured get much better care or attention so much so that not only the Chief Minister, even the Prime Minister feels it extremely essential [or rather a political compulsion] to visit the victims and show their 'serious concern' or sympathy to them. In actual fact, this 'show of serious concern', instead of helping the victims, causes more problems to the treating doctors who, instead of giving real treatment, are more occupied in maintaining a law and order situation and on commenting on medical bulletins to media that becomes hyperactive in such situations. On the other hand, dozens of injured in an accident may fail to get the attention of even local authorities. Evidently, emphasis must shift.

[A] Present status of Ambulance Service

At present no national or regional guidelines exist for pre-hospital treatment plans and transfer protocols. In the absence of guidelines, decisions about evacuation of the victim and the choice of the destination hospital are often made individually by patient's relative or those who come forward to help.

1. The Service: As far as emergency help is concerned, most of the time it is not the ambulance or first-aid team, but the common public or relatives who hire a transport to take the injured to the hospital. Even in metros which have relatively better health care, only 16-20% of victims are transported by an ambulance.

2. The response time: As compared to developed countries, in India, the average response time is much longer with the result that lives are lost that with a quicker response time might have been saved. In developed countries, the average response time is eight minutes and facilities for telephone or asking for help is available at less than a mile. Thus, implementation of the 'golden hour' concept still appears a distant goal in India.

3. The Number of Ambulances: The total number of ambulances is less than 10,000 in our country and they mainly belong to private hospitals or NGOs. These are supposed to provide help for all kinds of medical emergencies and are not dedicated to trauma care only. At present only 30% government hospitals have ambulance. The Ministry of Road Transport and Highways has provided 509 ambulances for road accident victims under National Highways Accidents Relief Service Scheme (NHARSS) during the last nine years(2000-09). Considering the total number of trauma cases [as mentioned above] this number is too small to manage

them. Although many private hospitals in big cities are providing efficient pre-hospital care this covers only a very small area or segment of the population.

4. The Training Status of team: Currently, only 4% of the ambulance personnel have been found properly trained for handling trauma victims. It is really sad to find that the most unskilled staff are given the job to handle the most delicate task! Regarding the number of paramedics in the ambulance, it varies considerably. One-third of ambulances serve only as transport vehicles with only a driver and no paramedic staff. Only 28% of the ambulances have two or more paramedics.

5. The Equipment: The type and quality of ambulance equipment for emergency life support and monitoring are very poor. Only a few are equipped for providing airway support and appropriate splinting. Most of them lack a comprehensive network operating between hospitals and ambulances.

[B] Present status of Definitive care

Care for trauma victims is offered either by government or private hospitals.

(a) Government hospitals: So far hospitals of Delhi, state capitals and those that are associated with medical colleges or universities, are providing a reasonable good care. However, on the other hand, the district hospitals often lack adequate infrastructure for management of polytrauma in terms of trained staff, supply of consumables and critical care. The poor public health infrastructure means that patients often do not receive appropriate care promptly. This delay compromises the results. Some ground realities/facts in relation to most of the government hospitals can be summarized under following points:

1. A very high mortality rate even after reaching the hospital: It is true that deaths occurring at the spot or with in few minutes, that are largely due to severe impact, are at present not under control even in the developed countries. However, it is very very sad to find that even among those who are reaching alive to the hospitals, a significant number dies during the hospital stay. In developed countries, only one out of 200 seriously injured accident victims dies in hospital while in India one out of every six seriously injured victim dies after reaching the hospital. Even in metro cities, out of the total deaths, 48-64% victims die after the hospital contact. There is little to imagine for the smaller towns or rural areas. Thus, response time and pre-hospital care are not the only important factors determining good results, the quality of post-accident

definitive treatment at the hospital also has a bearing on whether an accident victim survives or not. So even if you shift or transport the accident victim in the best possible way to the hospitals, you cannot relax thinking that now the things would move in order.

2. Available personnel and their skills often do not match the needs of the patients: There are not many dedicated trauma surgeons in India. Most hospitals are capable of dealing with mainly orthopaedic problems, hence only if it is purely a fracture in limbs, a good survival is expected. In the remainder, where there are multiple injuries, the results are poor. Responsibility is not clearly defined. In the absence of clear assignment of responsibility among specialists, clinical decisions are often delayed, putting patients with multi-system injury at a greater risk.

In a majority of district hospitals in the public health system, the casualty medical officer is the only one to respond. This is a striking paradox that the most seriously injured patients are frequently being dealt with by the very junior and inexperienced doctors. The concept of a dedicated trauma team that includes various super specialists to tackle emergencies of different fields is not there at all levels.

3. There is a lack of adequate facilities: It is really impossible in most of the district hospitals to start an operation at short notice. The much-needed investigations like X-ray, ultrasonography, CT scan, blood tests, etc. are not available under one roof. If at all some of them are available, it is only up to 2 p.m., while facilities for such tests for all the 24 hours is virtually mandatory for a proper trauma care. Often, willing and competent doctors feel handicapped for want of such facilities. It is also true that whatever equipment or facilities are available in the government hospitals they are not properly used owing to lack of co-ordination or drills. We blame unnecessarily the lack of funds, etc.

4. High referral rate: According to studies conducted by WHO Collaborating Centre for Injury Prevention and Safety Promotion, nearly 30 to 40 per cent of the cases in government hospitals are being referred to another one. This could be due to poly trauma requiring super specialists, lack of critical care or lack of some special investigations like CT scan under one roof. This frequently delays the definitive treatment and hence the survival.

(b) Private or corporate hospitals: In India, in general, about 60-70% of health care services are provided by private health sectors and if we consider it for the trauma care, even much larger groups seek private treatment. Private and corporate hospitals that provide tertiary or quality care are located mostly in metro or big cities. No doubt they

provide much better trauma care in terms of specialists, modern diagnostic and imaging facilities and intensive-care units. In any case they are very costly. In India or developing countries, pedestrians, cyclists, two-wheeler riders and passengers in buses, constitutes more than 70% of the injured and belong to lower or middle socio-economic groups. These groups cannot afford out-of-pocket payments for health care in such better equipped private health facilities.

Besides these big hospitals, a large number of small clinics and nursing homes are also providing the trauma care across the country. However, a majority of them lack critical care or comprehensive trauma care facilities. Such small set-ups are suitable only for simple injuries.

WHAT IS TO BE DONE?

Despite significant overall progress in many other medical fields, 'Trauma care for all' continues to remain a distant dream in India even in 2010. For an example we have world class medical facility for cardiac and other diseases, though this quality care may not be accessible to all. However, trauma care for accident victims is still not available to even those who can afford it on their own. There is a need for an affordable, effective and well-organized trauma care system to receive, stabilize and treat all the victims of accidents.

As we have discussed in chapter 2 [Road Accidents], the trauma care at a national level can only be provided through a big organization like the government. Thus there is a need for an independent single agency in Ministry of Health under which all the trauma care medical units of the state and National trauma systems can be brought together.

The three main aspects or pillars of the trauma care are [1] referral or specialized trauma centers for providing advanced care to serious or polytrauma cases [2] Smaller or satellite trauma centers capable of providing care for simple cases [3] an excellent pre-hospital or ambulance service. It has been found in surveys that out of total deaths in accidents, about 24% can be prevented only by providing simple trauma care after accidents while 46% can be prevented only by providing much advanced trauma care and the death in rest 30% is not preventable by any intervention except by taking primary preventive measures.

What would be the best module for trauma care? Although some modules have already been suggested by the government in the last few years, still I feel there is a need for more serious discussions on this subject. A detailed discussion of this planning is beyond the scope of this book. However, I would like to mention some relevant points that need greater attention or elaboration.

[A] Whether to form a separate chain of trauma centers or existing health services to be involved or upgraded?: So far as advanced trauma centers are concerned, I believe a separate chain is essential and this should not be merged with the existing health system. Nothing is wrong if geographically they are located within the premises of the existing government hospital complex. However, it should be totally independent in terms of budget, power, transfer policy, etc. Why?

1. Trauma care is an entirely different kind of health care. The team or specialists, the type of work, the requirements regarding equipment and the design of building are entirely different. Trauma care needs not only surgical specialists but also a highly specialized set-up that is quite different from that of present centers that are providing all types of care.

2. The state-run health services in most parts of the country are on the verge of failure already. I believe if the trauma care is merged with the existing medical networks, the chances of success are much less. If you want to start a new industry and if you join a unit already declared sick, I believe there are greater chances that the project will not succeed.

3. If the defence services, ESI or railways can maintain their separate chain of health care, then why not trauma care? Among the top three killers i.e. cardiac, cancers, and the trauma, we see in many metros or big cities exclusive cardiac or cancer centers are being opened. However, we do not see this trend for trauma centers either in government or corporate sectors.

4. At present, already there are hundreds of health schemes or national health programmes that are being run through the existing health system. In fact, the present district hospitals are the outlet for the implementation of each and every National or State health programme irrespective of the fact whether its infrastructure allows it or not. In such a scenario, proper justice to trauma care will remain doubtful. Even the concerned authorities would easily find excuses if this programme does not yield desired results.

5. Considering the magnitude of the burden of trauma patients, I feel the hospital capacity would be totally used in catering for them and it would hardly be able to provide any service to non-trauma cases.

6. Why did the government realize that in the Ministry of Surface Transport, there should be a separate department to deal with highways with independent power and funds? Similar grounds also exist for the need of separate section in Ministry of Health for the trauma care.

[B] About the Location of advanced centers: If some new trauma centre is to be started in an area the question comes where it should be located, inside the city or along the highways? As far as location of the advanced trauma centers is concerned their utility would be more cost effective and purposeful if located within the city. The reasons are: [1] A significant number of accident victims come as a result to accidents occurring inside the city. [2] Out of the total trauma cases road accidents constitute only 23-25% while the rest are owing to other kinds of injuries and come mainly from the city and need a similar kind of medical facility. [3] Highways [State and National] constitute only 6% of the total road networks so it will not uniformly cover all the road accident victims. What would we do for other 'district to district' roads that constitute about 14% of the total road network? As far as location within the city is concerned, it should preferably be on the ring road as it can be approached easily from all directions.

Regarding the total number of such advanced centers and choice of the cities for their location, it can be decided according to budget available, population density of the particular region, number of accidents occurring in that area [I mean purely on non-political basis and irrespective of the fact who represents the area or the constituency].

[C] About Satellite trauma centers: The smaller trauma centers are supposed to deal with simple cases. In this regards, unlike specialized centers, it is quite justified that the hospital that already exists on roadside or hospitals of the towns on the way, may be upgraded for this purpose.

[D] About mobile services: Today with the advancement in the mobile phones network, it is quickly possible to involve such units. I believe it is this area of mobile health units that needs greater attention both in terms of number and quality of service. The reason is that at present the various small health centers, that are present on the highways between two cities or in the nearby towns, are so poorly equipped for trauma care that you hardly get anything beyond the dressing of the wounds and that too only for a certain hours of the day [up to 2 pm]. Ultimately, these serious cases have to be referred to specialized centers and valuable time is lost in this. We don't feel this scene will change in the near future even if we start taking action right now. In this situation these mobile units are better because they are especially equipped for accident cases. In fact, this well-equipped van with a good team would become a 'small mobile hospital' and instead of taking the patient to such a center, it can be said the center itself would reach the patient. Besides this, while providing primary care on the spot and inside the van the victim continues to move towards the specialized hospital, thus

minimizing the time lag between the accident and of definitive care. If we consider in terms of budget required, their installation and running cost that too for 24 hours would be much cheaper as compared to upgrading these community centers.

Laws regarding Responsibility of Doctors and Hospitals

Following the Supreme Court order in 1989, the Motor Vehicles Act was amended in 1994 to make it mandatory for doctors to render medical aid or treatment without waiting for any procedural formalities, unless the injured person or his guardian, in case he is a minor, desires otherwise. The Supreme Court has observed: "Every injured citizen brought for medical treatment should instantaneously be given medical aid to preserve life and thereafter the procedural criminal law should be allowed to operate in order to avoid negligent death. There is no legal impediment for a medical professional when he is called upon or requested to attend to an injured person needing his medical assistance immediately. The effort to save the person should be the top priority not only of the medical professional but even of the police or any other citizen who happens to be connected with that matter or who happens to notice such an incident or a situation". Thus all hospitals in the country must compulsorily provide basic minimum care to accident victims, irrespective of their ability to pay. Hospitals should also avoid unnecessary referrals i.e one cannot refer the injured to another place on the ground that medico-legal cases are not dealt with at that place.

Practical Problems for Doctors and Hospitals

The court has the best intentions in giving strict instructions to the private hospitals in favour of such victims. However, the court should also look upon its practical aspect that the management of a critically injured person is not confined to dressing or bandaging only, instead it involves a lot many things. It may require a prompt intervention of more than one surgical team requiring use of OT, ICU, investigations, lots of medicines and disposables if we really want to do the best in favour of the victims. Even if the doctors do not charge any fee, there is going to be a significant financial burden to the hospital maintenance. If in such a costly affair where there is uncertainty about the payment or the patient expresses inability to pay later on and coupled with the fact that the incidence of accidents is increasing very fast, it would not be practically possible for every private hospital to help such victims as best as possible. It is quite possible that under pressure of courts, these hospitals may admit these cases on record. However, that sometimes may not be more than a formality as further steps regarding the management may not be

that prompt.

At present even in most of the government hospitals, most of the medicines are to be bought by the patient's people themselves. In such cases how does one expect that private hospital should arrange it for them? As far as implementation or execution of this law is concerned, even the most prestigious private hospitals of Delhi that have been given highly subsidized lands for hospital buildings [thus having moral and legal commitment to serve] are still not giving the subsidized or free treatment to the minimum quota allotted to them. If the government has no control over these real big profit-making hospitals sitting right in the National Capital, how can it expect that the other smaller hospitals lying thousands km away would follow it?

Instead, there should be some practical solution to it. There should be arrangements for some buffer funds, insurance policy for such victims at the national level [from government, highways authorities, RTOs, etc.], making urgent contact to some NGOs that have shown interest in helping such cases, tracking the relatives of the unidentified immediately with the help of network of police, radio and television, etc. To streamline these services, I feel there is a need for a National Programme for the road accidents victims like that of polio, TB or AIDS.

Responsibility of driver of the vehicle causing accident

Following the amendment in Motor Vehicles Act in 1994, it is mandatory for the driver/owner of the vehicle to take the accident victim to the nearest doctor or hospital. It reads as follows: when any person is injured or any property of a third party is damaged, as a result of an accident in which a motor vehicle is involved the driver of the vehicle or other person in charge of the vehicle unless it is not practicable to do so on account of mob fury or any other reason beyond his control, take all reasonable steps to secure medical attention for the injured person. He should give on demand by a police officer any information required by him or if no police officer is present, report the circumstance of the occurrence, including the circumstances, if any, for not taking reasonable steps to secure medical attention as required under clause (a) at the nearest police station as soon as possible, and in any case within twenty-four hours of the occurrence. Otherwise he may be charged for 'hit-and-run case'. If no other vehicle is involved in the accident e.g. you crashed against some tree or other objects, there is no compulsion to inform the police.

If a mob gathers and you fear for your safety, then take your vehicle and run to the nearest police station and tell them the situation.

In case a charge is being made out against you, you must know under what section you are being booked and always keep a copy of complaint with you. In the benefit of you and your vehicle, it is advisable in such circumstances always try and resolve the matter amicably with the other party. Proceedings of the formal charges may be a big nuisance to you. Once a complaint is lodged, you will have to hand over all necessary papers of the vehicle, including the driving licence and the vehicle will be impounded by the police station for a very long time.

What is expected from the society?

Today the passerby commuters hardly pay any attention to the dying accident victims. Remember that your contribution will not only help others but you yourself may require such help. Nobody knows who will fall victim of road accidents. Even the VIPs, whether it is Princess Diana or ex-CM Sahab Singh Verma or former union minister Rajesh Pilot, have lost their lives in a road accident. You never know what would be the situation at the time of the accident. You may be either a sufferer or a rescuer at the time of accident. The injured person inside the vehicle or on the road may be alone and lying unconscious in the pool of blood. He may be rich and able to afford the expensive treatment, but here he is totally at your mercy. Why have we become like this?

In today's world of kaliyug where the people are not paying attention to their real parents, why do you expect that some moral teaching would effect a change in their attitude? We should think of some more practical solutions. A passer-by can at least make a call to such a unit/police. Considering the very poor ambulance service in India, I feel that there is a tremendous scope for various charitable organizations in India. Instead of waiting for the government to think and rethink and then implement any firm policy as there are so many ifs and buts, it is expected that we ourselves come forward to help/start such services in and around our city. It is true that making some big trauma care centers requires much more budget and planning for charitable organizations but running an ambulance service is something that can easily be considered.

It is true that there is no dearth of donors in India. There is an extremely rich class that never hesitates in donating bags of gold and jewellery for temple construction. It would be much better if this class also makes some donation for the construction of trauma hospitals as the building of the hospital is in no way less than sponsoring a temple. It would be much better if you earn the blessings of god through serving the crying victims of road accidents.

Above all, it is up to the people to shed their apathy towards

an accident victim because of hassles they may suffer later. Remember it could be you who could be the victim and you could die because of someone else's apathy.

Accidental Deaths and Organ Transplantation: a neglected issue in India!

Present status: At present in India, every year around 1 lakh people need kidney transplants while 60,000 people need liver transplants. For these people an organ replacement remains the only dream for cure. But actual transplant is possible only in 3% of these cases while rest of the cases ultimately die in due course of time mainly due to unavailability of the organs. To prevent organ trafficking, the present Human Organs Transplantation Act [1994] restricts the living donors to blood relatives and spouses only. But at the same time, it legalized the concept of cadaveric transplant or organ procurement from brain dead patients. However, even after 15 years since this Act has come into existence, a cadaveric transplant programme has yet to take off in India.

At present whatever transplant surgery is being done is mainly based on living donors. Even in cases where the blood relations are ready to donate, only in one third of cases it is actually possible after the tests and matching. So for the majority of such dying cases cadeveric transplant remains the only hope. Unlike most developed countries, where cadaveric transplantation programme is very successful [In US 80% and UK 70%], in India it is possible only in less than 2% cases. On the contrary, more than 1 lakh accidental deaths occurs every year in this country, but only a handful of cadaver transplants take place. Thus a proper cadeveric transplant programme in India where we can utilize the organs of these dying victims of the accidents could save a large number of dying patients from the end stage organ failure.

What are the hurdles?: The main reasons why organs are not donated or cannot be procured can be summed up as follows.

1. Unlike eye donation, [that is possible after actual or clinical death of the patient], other organs like kidney, heart and liver have to be removed at the brain-dead stage where these vital organs continue to work normally. So the relatives feel that the patient, in reality, may not be dead. When his heart is beating, he looks normal, so why remove organs in such circumstances? This is what they ponder.

2. There is lack of awareness among family members as well as doctors.

3. Lack of infrastructure for organ procurement and transplantation in that geographical region.

4. It could be against one's religion.

5. Fear of body mutilation, not getting the body back in time, harassment in paper work, etc.

6. Misbelief about missing organs in future births.

On the other hand, this is also true that many a time the family members have a desire to donate organs but they do not know how to go about it or even the hospital staff does not know how to take the initiative in such cases.

What is to be done? The following issues need to be addressed:

[a] Proper Infrastructure: The first and foremost requirement is to establish a proper infrastructure for cadeveric transplantation in India. This includes:

1. A proper national database or centralized registry online for all the patients that are waiting for organs. This should be based on several factors like blood group and tissue typing, medical urgency, time on the waiting list, geographical location, etc.

2. Establishment of an organization of transplant coordinators: Although in India we have many medical centres where adequate facilities for transplantation along with competent transplant teams are available, it is the network of the transplant coordinators or agencies that are mainly lacking. Whenever an organ is available, transplant coordinators come into action and coordinate mainly with the three teams, viz: 1. hospital authorities where the brain dead patient is under treatment. 2. The nearest retrieval team that can come and remove the organs from the brain-dead patient. 3. The transplant team. Based on the national registry, they locate the most eligible waiting recipient in the country and make arrangements for its transfer to the recipient where that particular organ transplant team is waiting to do the transplant.

To prevent damage, the organ transfer should be quick and that frequently requires a helicopter or air service.

3. Besides, a separate local team of counselors to guide and motivate the relatives of the brain dead to donate the organ is also required. 'How to approach the relatives of a brain-dead patient' is a very sensitive issue and needs a very good understanding. Here we can take the help of local social organizations, psychologists, religious leaders and the family physician of the patient who is in contact with the family for a long time and on whom they rely more. Obviously, the doctors of the transplant team are not allowed by law to do this by themselves.

[b] Financial: The organ transplantation is not only costly from

the recipient's point of view but also from the donor's [cadeveric] point of view. For a brain-dead patient to become a donor, he has to be kept on ventilator or life-support machines, so that blood circulation continues. Following the consent of the family this ICU care has to be continued till the blood tests, tissue typing is completed and an organ retrieval team comes to do its job. This ICU care is very costly. Although most of the time the recipient may agree to bear these expenses, who is going to be the recipient can only be known after the basic evaluation of the donor. So till then who will be responsible for the expenses? Here arises the need and role of medical or third party insurance.

[c] Social: Like blood or eye donation, people should come forwards to discard superstitions and change their attitudes towards organ donation. Organ donation is a way of "giving something back" to the society. It costs nothing. If one dies, one's organs can save the life of several people [at least 8-10]. A young person of productive age group who is attached to a dialysis machine could return to full-time work after receiving a kidney. It is essential that our family and loved ones know our wishes, so that if death occurs, the family should let the attending doctor know about what the deceased person wanted. One can carry an organ donor card or can indicate his wish for an organ donation on driving licence.

In some countries, like Belgium or Austria, there is a concept of 'presumed consent'. If one has not specifically mentioned that he does not want to donate the organs, then it is understood that the organs can be removed at the brain dead stage. However, in India, right now it would be too strong with a scope for its misuse, so probably it needs a thorough debate before making such a law.

[d] The media: In addition to doing some sting operations and informing the police about illegal activities of ogan trades, the media should also address all the real issues or hurdles [as mentioned above] that are related with transplant programme in India. Sometimes an over-enthusiastic approach of the media in scandals related to organ trades can cause great humiliation and embarrassment to the whole transplant fraternity. During the last decade the transplant programme has virtually come to a standstill. How it can be justified that a wrong practice of a handful of professionals should be made a ground to make a generalized image of whole transplant programme as if it belongs to a group of mafia or vultures.