The Scenario of Spinal Cord Injury Management in India and its future perspectives

Introduction

Spinal Injury had been described initially as “an ailment not to be treated”. The management was revolutionized during the second world war by Sir Ludwig Guttman and Sir George Bedbrook. They were able to demonstrate that if properly managed these patients can lead a near normal life style. Numerous Spinal injury centres were subsequently established in developed countries. However in the developing countries establishment and development of spinal injury services had been given a low priority mainly due to the high expenses involved, less favourable outcomes as compared to those in other diseases and affliction of predominantly lower socio-economic strata of society.

It has only been in the last two decades that the developing countries have setup dedicated Spinal Injury Centres in order to focus attention on spinal injury management.

Epidemiology

In the developed countries, the incidence of spinal injuries varies from 20 to 50 per million population. The most common mode of injury is road traffic accidents.

However in India there are major epidemiological differences as in other developing countries of the region. Though there is no proper epidemiological study, it is estimated from pilot studies that the incidence is 20 per million population and the main mode of injury is fall from height which could be due to Fall from un-protected terrace, tree, electricity pole, well, overloaded bullock carts / tractors / buses / trucks / trains / other vehicle, Construction site etc. Road traffic accidents are the second or third most common mode of injury and are on the increase. The report of Surface Transport Ministry showed a four fold increase in death and injury cases between 1970-1990. India’s vehicular population is 1% of global shares whereas share of road accidents is 6%.

In addition the difference in population distribution (74% of the Indian population lives in rural areas) and the fact that most accidents takes palace at home or in the unorganized sector has major implications in the strategies for management of the patients.

Management at Site of Accident and Transfer to Definitive Centre

Emergency medical care is very important in SCI Management for saving lives and preventing additional progressive neurological trauma. Statistics from Western Countries in 1970’s showed 33% die within 1st year - Of these, 90% died enroute to the first hospital Establishment of proper emergency medical services reduced mortality rate to 4.2% and reduced incidence of complete injuries from 62% in 1972 to 1% in 1986.

At the site of accident the spinal injured should be extricated and first aid given by trained personnel. Evacuation to the nearest major accident and emergency centre should be done by trained personnel using an appropriate mode of transport (road, helicopter or aircraft). After the patient is stabilized he/she should be shifted to a definitive center specializing in the management of SCI.
Pre-hospital management has not been given due emphasis in India. Of late there has been an effort by the government and NGOs to set up these services in some cities. Centralised Accident and Trauma Services (CATS) and Highway Road Traffic Patrol are some endeavours in this regard. Some private organizations are also offering such services.

**Acute Management**

Acute management involves management in the emergency room, comprehensive evaluation, surgical or conservative management and management of complications.

Patients with SCI managed conservatively need to be in bed for a specified duration during which they require meticulous care. With the inadequate and unsuitable management infrastructure (over burdened hospitals which find it difficult to accommodate spinal injured patients for a long duration), paucity of trained personnel and unsuitable climatic conditions in our country, surgical stabilisation and mobilisation may provide better results.

**Bladder Management**

Improperly managed neurogenic is still the commonest cause of morbidity and mortality in spinal injured in India. Thus the situation here is the same as was prevalent in developed countries before spinal injury and bladder management was revolutionized. The high expenses involved with use of disposable catheters for clean intermittent catheterization may be partly responsible for this. However, it has been clearly demonstrated that even though disposable catheters are desirable, reusable catheters, cleaned by soap and running water and stored in a clean cotton bag, are a suitable, affordable and practical option. Thus the issue may not be just be the costs involved, but mainly the awareness amongst the patients and the professionals.

**Rehabilitation**

The major goal of rehabilitation is to make the individual as independent as possible in his/her activities of daily living and to get him/her back to a near normal life style. It requires specially trained staff and team effort. The rehabilitation team includes spinal injury consultant, nurse, physiotherapist, occupational therapist, orthotist, psychologist, peer counselor, social worker, and vocational counselor.

Rehabilitation should be done according to the environment in which the patient has to return, for example, if the patient has to go back into a village and is rehabilitated according to an urban setting, the program is bound to fail. The rehabilitation team should plan the goals in consultation with the patient and the family and regularly monitor the achievement of goals.

Wheelchair clinic, use of assistive technology and educational classes for patients and care givers are important components of rehabilitation as are sexual counselling, fertility clinics, peer counselling, psychosocial counselling and sports and recreational therapy.

However, in India, very often the patients are provided acute management and are then sent back home without comprehensive rehabilitation which is vital for the management of the patient. Sexual rehabilitation is a very important but neglected field especially in India where talking about sex is thought to be a taboo. Upto 50% – 60% success rate is possible in the field of fertility for spinal cord injured but services in this field are not well developed in India.
Psychosocial Rehabilitation

The spinal cord injury has major consequences psychosocially not only for the patient but also for the whole family. Hence psychosocial counselling by psychologists, social workers and peer counselors is important for the patient as well as the whole family.

Such services are not well developed in India. Even otherwise people shirk from consulting a psychologist since this is considered a stigma in a large section of the Indian Society. However strong family support and religious believes (like the doctrine of Karma) may be responsible for better coping skills and hence a lower incidence of psychosocial problems in the Indian spinal cord injured population.

Vocational Rehabilitation

Unless the rehabilitation process involves making the individual economically productive members of the society through vocational counselling and training, the job is incomplete. This assumes importance especially since most of the spinal injured are the sole or important bread earners for the family and are not able to go back to the same vocation after spinal cord injury.

In India the joint family system, as is especially prevalent in the rural areas where the majority of the population lives, is responsible for less stress on the patient with regard to return to a vocation. Also with the family support they often are able to return to the vocation which is common to the whole family.

Home Modifications and Reintegration into the Community

A pre-discharge home visit to suggest home modifications, follow up home care services to minimize any complications at inception and to help the patient in returning to a normal life style and reintegration back into the community is important.

These services are poorly developed in India. Further barriers in the environment prevent the spinal injured from moving around freely both in the community and at work place. There has been an endeavour by the Government to provide a barrier free environment but we still need to go a very long way in this regard especially considering the predominantly rural population.

Follow-up

A life long regular yearly follow up is mandatory. Follow up can help to detect and prevent complications. In developed countries there has been a dramatic reduction in mortality due to decreased urinary tract complications. Instead now pneumonia, nonischaemic heart disease and septicaemia are the leading causes of death.

However in developing countries, mortality is still mainly due to urinary complications. Follow-up by the patients is poor due to financial and other constraints.

Prevention

The dictum “Prevention is better than cure” is very relevant in spinal cord injuries and a very strong focus should be given on it. This could be done by public awareness programmes and implementing
legislation which can help prevent accidents in various sectors such as transport, agriculture, industry and sports.

Strategies for prevention have to be different in developing countries like India due to differences in prioritization, epidemiological differences, differences in population distribution (urban vs. rural), differences in available resources and differences in mind set of the population.

**Summary of Indian Scenario**

It has been clearly proven that if the spinal injured reaches a definitive institution early than the outcomes are far better. However there are a limited number of spinal injury centres in India. Further the patients reach these facilities quite late. This compromises the outcome of management.

Spinal injury management requires a multidisciplinary team management by specially trained medical and paramedical professional. However there is a paucity of trained professionals in this field in India. Of late there has been a growing realization of the importance of human resource development. The endeavour of Nagpur Spine Club in this aspect is one such example.

In India financial constraints and patients not reaching definitive institution are commonest factors hindering management during hospitalization. In addition lack of adequate facilities at definitive institution, psychological factors, illiteracy and inadequate patient education are other factors hindering their management during hospitalization. Inadequate rehabilitation, a barrier-ridden environment, difficulty in availing assistance offered by government/other agencies, inadequate community awareness, financial barriers, lack of availability of assistive technology and irrational beliefs are factors hindering integration into mainstream of society. Strong family support, religious beliefs, community support and support from spouse are positive factors in Indian Society.

Prevention, first aid at site, evacuation from accident site, ventilatory management, adequate rehabilitation, fertility, vocational training, pre-discharge home visit for modification, follow up home care service, follow up in hospital, integration into community and barrier free environment are the neglected areas of SCI Management in India. The long list of neglected areas suggests that the ailment is still given a low priority.

However the last two decades have seen a renewed interest in India to improve services for spinal injured. Other than the Indian Spinal Injuries Centre, recognized by the government as a Tertiary level centre, few regional centres have come up and more are planned by the government. Most aspects of management are being looked into and there is a growing government – NGO cooperation in this regard. Things are bound to change in the interest of spinal injured and the Government will have a big role to play through community awareness & prevention programmes, implementation of Equal Opportunities Bill and promoting education & research. A National Programme on Management of Spinal Injuries should be mooted.

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