

Prevalence of Medical Complications vis-à-vis Psycho-social Complications in Spinal Cord Injury Patients

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Abstract

Rehabilitation Management of spinal cord injury (SCI) patients is often hindered by the presence of many medical complications. There also various psycho-socio-vocational complications which go unnoticed. These may vary in different setups.

Twenty consecutive SCI patients were examined in this cross sectional study for the presence of complications. Psychological distress was the highest prevalent complication with 7 patients having suicidal ideas, followed by neurogenic bladder dysfunction, spasticity, pain and pressure ulcer in that order. Symptomatic urinary tract infection (UTI) was present in only two patients. Though there was fair functional independence and adequate family support, only 9 were productively employed at time of study. Only two persons had satisfactory sexual relationship. Most of the patients were reluctant to discuss psychological and sexual issues.

There is a need for more stress in psychological problems faced by patients with SCI. Studies with larger patient population is warranted in the light of decreasing incidence of preventable complications like UTI and pressure ulcers.

Introduction

Management of spinal cord injury (SCI) has come a long way from "ailment not to be treated" of Edwin Smith Papyrus to present day interdisciplinary approach, considering spinal cord injury medicine as a subspecialty of Physical Medicine and Rehabilitation (PM & R).

SCI management comprises of acute phase management, rehabilitation and management of secondary complications, which may have to be carried out for life-time of such patients.

Patients with SCI frequently encounter various medical complications, which are common reasons for hospital admissions and thus receive prompt medical attention. There are other

associated problems of psychological, social or vocational nature, which often go unrecognized. These issues usually are considered shameful to express and hardly receives medical attention. These complications, medical or psychosocial affect quality of life (QOL) adversely than the extent of SCI^{1,2}.

Prevalence of secondary complications vary according to methodologies of data collection, socio-political, economic and sanitary levels of country of residence and environmental aspects.³ Thus study of prevalence is important.

Objectives

To assess the prevalence of medical complications as well as psychosocial complications in spinal cord injury patients in a tertiary level Indian set up.

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Methodology

Twenty (20) consecutive SCI patients (both inpatient and outpatient) were examined after consent.

Study Design: Cross-sectional study.

No. of cases: 20

Method of data collection: History, clinical examination and relevant investigation.

Inclusion Criteria

- Chronic SCI patients (more than 6 months duration)
- Age above 15 years
- Both sex
- No associated headinjury
- Willing to take part in study

Exclusion Criteria

- Acute SCI
- Less than 15 years age
- Malignancy as cause of SCI
- Cognitive impairment
- Pre-existing psychiatric illness

Results

Out of twenty, 14 patients were male and 6 female. The age distribution was 15 to 58 years with a mean of 32.7 years, a relatively younger population. The duration of SCI varied from 6 months to 14 years. There were 16 paraplegics and 4 tetraplegics in the study.

Trauma was the commonest cause of SCI (12). Only one tetraplegic was completely dependent in activities of daily living (ADL). Ten patients had modified ADL dependence and 9 did not

Table 1. Patient characteristics

	Variables	Number Of patients
Sex	Male	14
	Female	6
Cause of SCI	Trauma	12
	TB Spine	1
	TB myelitis	1
	Compressive myelopathy	5
	Non compressive myelopathy	1
Spinal cord levels	Cervical	4
	Thoracic	11
	Lumbar	5
ASIA Impairment Scale	A	6
	B	5
	C	2
	D	7
	E	0
FIM Score	No helper	9
	Modified dependence	10
	Complete dependence	1

need any helper (Table 1).

Medical complications

Medical complications present in these patients at the time of study in order of prevalence were:

1. Neurogenic bladder and bowel dysfunction. Present in 14 (70%) patients with highest prevalence. Six (30%) patients were managing bladder problems by doing clean self intermittent catheterization (CSIC). Vesico-ureteric reflux (VUR) with hydronephrosis was present in 2 (10%) cases.
2. Spasticity
Spasticity was the second common

Table 2. Prevalence of complications

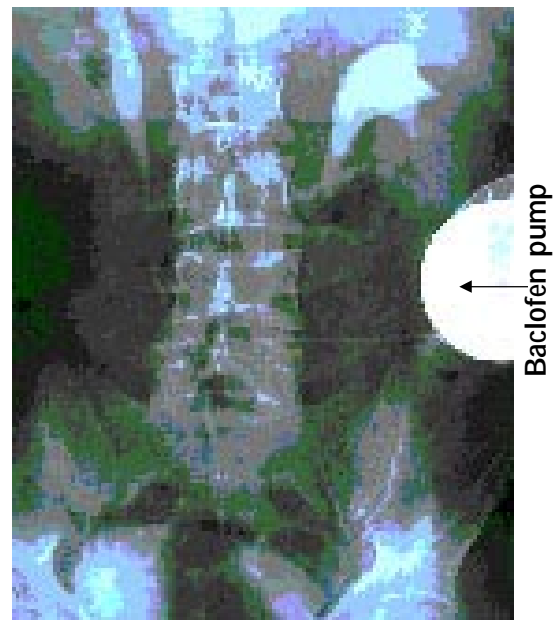
Complication	Number of patients	Percentage
Psychological distress	16	80%
Neurogenic bladder dysfunction	14	70%
Hydronephrosis	2	10%
Spasticity	12	60%
Baclofen pump	2	10%
Pain	9	45%
Pressure ulcer	5	25%
Limb deformities	5	25%
Heterotopic ossification	4	20%
Urinary tract infection	2	10%
Vesical calculus	1	5%
Autonomic dysreflexia	2	10%
Lower limb oedema	2	10%
Thoracolumbar kyphosis	2	10%
Syringomyelia	1	5%
Anaemia	1	5%
Suicidal ideas	7	35%
Unemployed	11	55%

complication, present in 12 (60%) patients. The grades on modified Ashworth scale (MAS) were as follows:

- Grade 1 - 5 cases
- Grade 1+ - 1
- Grade 2 - 4
- Grade 3 - 2
- Grade 4 - 0

Troublesome spasms were present in one patient. Two patients had Baclofen pump (Fig. 1) inserted for spasticity

Figure 1. IVP film showing baclofen pump



management and one of them had pump related complication of non-healing abdominal pouch wound and oedema.

3. Pain – Total of 9 (45%) patients experienced pain of different nature. The pain was of musculo-skeletal origin in 5 (25%), referred pain in 3 (15%) and central cord pain in 1 (5%) patient respectively. The patient with central cord pain had syringomyelia.
4. Pressure ulcer – Five (25%) patients had

pressure ulcers grade 1 in 1, grade in 3 and grade 4 in 1 (Fig. 2).

Figure 2. Pressure ulcer (grade 3)



5. Limb deformities – Out of 5 (25%) patients who had limb deformities, 3 had flexion deformities of hip joint, 2 had both hip and hence flexion deformities and one patient had equines deformities of both ankle joints (Fig. 3).

Figure 3. Hip and knee flexion deformities



6. Heterotopic Ossification (HO) – HO around hip joint was present in 4 (20%) of these patients (fig. 4). One patient had around unilateral knee joint as well. One patient had right sided hip dislocation due to this (Fig. 5).

7. Urinary tract infection (UTI) –

Figure 4. Hetrotopic Ossification



Figure 5 HO with hip dislocation



symptomatic UTI was present only in two (10%) patients at time of study. One patient had vesical calculus (Fig. 6).

Figure 6 Vesical calculus



8. Autonomic dysreflexia – Two high level paraplegia patients had autonomic

Figure 7. Syringomyelia



dysreflexia. Triggering factor was UTI in one and menstrual cycle in the other.

9. Oedema – Two (10%) had postural oedema of both lower limbs.
10. Spinal deformity – Thoracolumbar kyphosis was present in 2 (10%) patients.
11. Syringomyelia – One patient with quadriplegia had severe dysaesthesia and the reason was found to be syringomyelia (Fig. 7) on magnetic resonance imaging (MRI).
12. Others – One patient had anaemia. One male paraplegic had osteoporosis with healed fractures of femur and clavicle. Personal hygiene was very poor in two patients.

None of the 20 cases studied had any evidence of deep vein thrombosis (DVT) or respiratory complications.

Sexual complications

Of the 20 persons studied, 11 (55%) were married and only two had satisfactory sexual relationship according to them. Other patients had limited intimacy with spouse and did not attempt sexual intercourse due to illness. Excepting three, all were reluctant on sexual issues. Two persons separated from spouses prior to SCI did not express any desire for recession or remarriage.

Possibility of any form of sexual abuse was difficult to assess due to reluctance, especially in outpatients. However, 5 female patients were asked, 2 denied abuse and 3 preferred not to discuss.

Psycho-social complications

Psychological status was assessed using general health questionnaire (GHQ), which is a 12 item scale, each item scored from 0 to 3. Score more than 15 indicated evidence of psychological distress and more than 20 indicated presence of severe problems and psychological distress.

Fifty five percent (11) of patients had score > 20.

Suicide

Suicidal ideas were present in 7 (35%) patients. Two had attempted suicide in the past few weeks. One of these two was an inpatient and received psychiatric intervention and help. The other outpatient was forthcoming with information and expressed the need for help. Others indicated suicidal ideas only on questioning and never received any help. None admitted to any form of substance abuse.

Vocation

Fifteen (75%) persons were employed prior to SCI only 9 (45%) were productively employed at time of study. Only two were doing full time job. The reason for unemployment was ill health in only two patients. Four had lack of motivation and 5 did not find any suitable work.

Social Intervention and Recreational Activities
Seven (35%) persons maintained a balance of social contacts and 13 (65%) had restricted social life.

Television viewing was the recreational activity reported by majority. Six persons did not indulge in any recreational activity.

Architectural Barriers

This problem was irrelevant for half of the study population and seven had minor problems but were able to manage without assistance in the household. Only 3 persons had major problems at home.

Family Support

Eleven (55%) patients reported adequate physical and mental support from family members. Three persons experienced strain in family relationships due to disability. Other 6 needed minor adjustments in relationships.

Discussion

Urinary tract infection (UTI) is reported to be the highest prevalent medical complication after SCI^{3,4}. In the present study, symptomatic UTI was 7th in prevalence. This may be due to (1) rigorous bladder management programme, (2) small study population or (3) immediate medical attention and treatment. Our findings become significant in the light of observations made by Whiteneck et al⁵ and Ditunno and Formal⁶. White neck et al reported that the number of renal deaths is decreasing over time. Ditunno and Formal observed that UTI is the most frequent complication in 2nd year after injury and is the 5th frequent complication 3rd or more years later, where pressure sore is the most frequent. This also could explain our finding where the duration after SCI varied greatly.

Some authors opined that pressure ulcers were the most frequent complications in SCI patients, followed by autonomic hyperreflexia and respiratory problems^{5,7,8}. We found that pressure ulcer was fourth in prevalence and autonomic hyperreflexia was still lower in prevalence. These findings suggest that there is a decline in the prevalence of preventable complications.

Neurogenic bladder dysfunction, spasticity and pain in that order were the highest prevalent medical complications in our study. This is important as prevalence rates vary from country to country and hospital to hospital. A total of 16 patients (80%) had evidence of psychological distress and 11 had severe problems in this study, despite fair amount of independence in ADL and adequate family support. This view is supported by Gerhart et al who stated that perceived stress in long-term SCI is not closely related to severity of disability or physical dependence⁹.

Two subjects had attempted suicide.

This needs to be taken care of as there is evidence of higher suicide rate in SCI population over general population^{10,11}. Hartkopp et al also suggested that the total suicide rate in marginally disabled is twice as high as in complete tetraplegics. We support the view of Scivoletto et al that provision of psychological services in rehabilitation centres is justified and should be provided even after discharge¹².

Forty five percent of patients were productively employed in the study. Hall et al reported that approximately 1/3rd of patients in their study had at least a college degree and only 1/4th were employed¹³. Krause et al suggested that whereas 58.6% of patients were gainfully employed at the time of injury, only 27% were working at follow up¹⁴.

Conclusions

Psychological distress revealed by GHQ had maximum prevalence in the study population (16/20). The highest prevalent medical complication was neurogenic bladder dysfunction (14/20). All cases with medical complications received treatment but only two with psychological distress sought treatment.

Though majority of persons with SCI had fair functional independence levels and adequate family support, few were satisfactorily employed. Majority hesitate to discuss sexual problems. The picture might change with frequent reinforcement. Recreational activities took learnt priority in daily life of these patients with most of them confined to bed for major part of day.

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