Original Article

Measurment of frequency of signs & symptoms in 120 cases with cord injury

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Objectives: Nowadays, spinal cord lesions, specially its injury, is one of the diseases/injuries that human-being is been affected by. It , not only, causes irreversible economical/social/cultural problems & uncompensated costs to the patient's family & society ,but also , makes active peoples to inactive & needy ones. Till now, there is no successful treatment for these patients; so this ailment ,its sign/symptoms & effects must be considered as a true negative trouble.
Our society is also affected by this injury. Since , understanding the problems & side-effects of this disease is so important(one of the first things need to encounter with) we try to evaluate the problem & effects of that from most expanded point of view.

Method: In this study 120 patients with spinal cord injury (between 15 to 45 years old) was evaluated. All data were registered in special check list which had been designed for this study & finally assessed.

Resulte: After assessing & analyzing information the most prevalent problems were: atrophy(100%) , pain with spinal origin(77.5%) , spasticity (67.5 %) , movement limitation(62.5 %) ,pressure ulcer (42.5%),vertebral column malformation (15%), improper ossification(10%).

Discussion: In this study the patients' problems were obtained, many of them were treatable & preventable. It is considered that by identification of these patients & better medical & rehabilitative care , making good life or even returning to the normal every day life is possible. This study can be a first step for further studies & better treatment procedures in spinal injured patients.

Key words : Spinal cord/ injury/ symptom/ sign/ frequency.

Introduction:

Primitive men had been identified the results of trauma to spinal cord. The first descriptive writing about para/quadriplegia in human was found by Edwin-Smith (on the papyrus). In this writing symptoms of spinal cord injuries, directions for examining of & encountering with patients affected by spinal cord injuries was described by Egyptian doctors. In the second century , a scientist ,Galen, was anatomized spinal cord in guinea pigs, goats & monkeys and dissected it at different levels & got very useful information. He found that longitudinal dissections have no effect on breathing & body movements. Nevertheless, in transverse dissections ,he found out paralysis & numbness in parts of body lower

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than dissected level.

In 1793, German surgeon, Sommering , described clinical symptoms of fracture & dislocation of vertebra. In later years & till the second world war many studies & researches regarding symptoms of traumatic spinal injuries & its treatment methods have been performed ; & special ward with various examination & treatment works/opportunities was considered for these patients. Although progress in treatment was not fast & vast but , everyday, very useful information about pathophysiology of these patients was gathered, Which was so helpful & valuable for controlling & treating autonomic disorders, metabolic problems & skin , bladder & digestive system care.

Since the annual incidence of spinal injuries is different in various societies , so estimation of exact & clear reverse economical, social & cultural effects of these injuries is so difficult. Other etiologies (with lower prevalence) are: falling from height , sport activities , & hard spinal deficits ; which cause organ malfunction , disability , & handicap. Rehabilitation of these individuals are related to assessment , examination & treatment of medical symptoms after spinal injury. A series of symptoms are seen during primary treatment such as : infection of urinary system , infection of respiratory system , phlebitis , thrombophlebitis , sepsis & digestive system ulcers. After primary treatment the second step is included returning disabled peoples to the society & preparing his/her future of life. For all these, prevention of long-term symptoms of spinal injuries is needed. Most of these difficulties (more than paralysis) decline the productivity & usefulness of the patients. The main problems are:

1-Pain:

The exact reason for pain in spinal injuries is not known, but excessive sensitivity of ascending spinal pathways & changes of pain pathways due to trauma have been considered as main reasons Most patients are suffered from irritating pain , deep pain & radicular pain(1-4).

2-Pressure ulcer: Most patients with spinal injuries have this problem; Which is seen in some parts of body that a bony bump is covered by skin. There is no relation between intensity of pressure ulcer & intensity of spinal damage(5) , in a way that, in total spinal damage, the intensity of pressure ulcer is higher(6).

3-joint movement limitation: Increase of muscles tonicity due to spinal damage deteriorate the possibility of natural/normal joint movements. If this problem is not solved by passive movements , makes limitation in joint movements. The other reasons for joint movements limitations is ossification around the joint(the prevalence rate of this difficulty is 16-53%)(7).

4-Pathologic fracture due to osteoporosis: After spinal damage ,osteoporosis gradually increase.. This problem occur at all bones except skull & frequently present in the lower level of lesion. Lack of movement has the main role in osteoporosis process. Osteoporosis , at first , is seen in superior part of femur & pelvic area , & the most fractures is occurred at the end of femur & superior part of tibia(8).

5-Scoliosis: That is not common , specially when the lesion is located at the upper part of thoracolumbar region ,& may be reflected as scoliosis , lordosis , kyphosis or combination of these. Scoliosis & malformation in vertebral column & limb have various reasons such as : change of tissue in paralyzed muscles , displacement of fibrosal tissue , long-term imbalance or lack of coordination of muscles at different parts of body.

6-Heterotropic ossification: Metaplastic osteogenesis in soft tissue can be seen after spinal damage . Joint rigidity (specially in hip joint) is one of these which cause pressure ulcer.

7-Spasticity: Spasticity is the major problem that appear after 2-3 months & exaggerated by any kind of stimulation in body such as pressure ulcer & infection of urinary system. In partial spinal damage (in comparison with complete one) this symptom is reflected very fast(9-11).

8-Muscle atrophy & chronic pain : Due to the lack of sense & motion in organs lower than damage site , the muscles are fast atrophied. Using of brace & maintaining of balance in standing position is advised as a suitable preventive way. In our country there have been many posi-

tive & useful works & acts in this regard; and so, we are trying to share our best in these activities , as a small step.

Research method: This is a descriptive-cross sectional study. Statistical population is 120 patients , between 15-45 years, affected by spinal injuries & with available hospital directory. At first, a check list for obtaining information, registration of clinical examination results & paraclinical findings was prepared. Afterward & for 3 month , each patient was examined & evaluated at clinic or at home , & all the results were filled at check list & filed. Finally, all the results were analyzed by SPSS software.

Findings :Most symptoms according to the prevalence amount are: atrophy , pain with spinal origin ,spasticity , movement limitation , pressure ulcer , scoliosis & ossification(FIG: 1).

Various degree of atrophy can be seen almost at all patients; in 111 patients it is in lower limb(92.5%) , in 9 patients it is in lower & upper limb(7.5%).

Among 93 patients who have pain with spinal origin, 84 individuals(90.4%) have chronic & 9 patient(9.6%) have acute pain. Pain was mostly located at proximal part of lower limb & pelvic belt; & afterward at distal part of lower limb , pelvic belt & finally at upper limb(FIG: 2). 51 patients have pain all day (day-night) , 30 patients have night pain (32.25 %) & 12 patients have daily pain (12.9%). The pain had radicular entity but ,besides, the patients have suffered from pressure , irritating pain (FIG: 3).

51 patients had pressure ulcer (42.5%); in 36 patient only one ulcer & in 15 patients more than one ulcer could be seen. These ulcers were mostly located at these parts (in a sequence of prevalence): hip, lumbar area , ankle , femur , & toe(FIG: 4)

Spasticity was seen at 81 (67.5%) patients ; in 75 patients (92.5%) it was in lower limb , in 6 patients (7.5%) was in lower limb & abdominal wall.18 patients had vertebral column malformation ; 12 individuals of them had kyphoscoliosis (66.6%) , 3 had kyphosis (16.66%) & 3 had scoliosis (16.66%).

Heterotopic ossification was present in 12 patients (10%) ; mostly located at knee(75%) & femur (25%). Movement limitation could be seen at 75 patients(62.5%) ; among them 57 individuals (76%) had limitation at lower limb & 6 ones (8%) at upper limb & 12 patients (16%) at lower /upper limb.

Discussion:

This study show that there is various musculoskeletal sign & symptoms with different degrees in the patients. These sign & symptom include; pain, pressure ulcer , limited joint movement, pathologic fractures , scoliosis , heterotopic ossification , spasticity & muscular atrophy. Among these , the most common one was muscular atrophy which can be seen at almost all patients; The least common problem was pathologic fracture. The symptoms can be categorized sequentially , according to their onset time: pressure ulcer , urinary system infection , skeletal problem(7).

High percentage of patients suffered from pain with spinal origin. Spontaneous stimulation of spinal cells was mentioned as one of the reasons for this kind of pain(12). Mainly, this is chronic & also located at lower limb , hip & inferior part of damage site.

There is good agreement between our study results & other researchers which mentioned the location of pain at lower limbs & specially Suddle region(13). In this study 93 patients(77.5%) had pain. This sign in similar studies were 94% which was located at the inferior part of the damage. 19.4% of patients had phantom pain ; this percentage in other studies was 25%(14-16).

Movement limitation , mainly at lower limbs, in this study is seen in 75 patient(62.5%). This percentage in other studies was 15-53% , mainly in hip joint & (with lower degree) shoulder & elbow one. Ossification of affected joints have been reported as a main reason for movement limitation(17).

Pressure ulcer was seen in 51 patient (42.5%) , mostly in hip , lumbar & ankle. In some studied the percentage of pressure ulcer was reported 23%(18) & in others 30-50%(19).

The long term sign in spinal injured patients is os-

teoporosis due to the bone demineralization phenomenon. In this study , there is 15% osteoporosis without any report of fracture. In the similar study only 4% of fracture have reported(20). The most reason for fracture are falling & excessive rehabilitation motions.

The other problem of these patients is vertebral column disorders which show itself as kyphosis , kyphoscoliosis. Osteoporosis , muscular atrophy , imbalance or weakness of vertebral muscles (21). The reason of heterotopic ossification is unknown . In this study 12 patients(10%) have this problem (in other study this is 20-50%)(22).

Spasticity is mostly caused by superior motor neuron deficit(23-24). In this study it is 67.5 % (81 patients) but at one study the amount of that was 33.3%(25).

Conclusion:

According to our study , it is obvious that due to industrialization process of the societies & various accidents , some people affected by spinal injuries & consequently various inabilities & handicaps. Consequential symptoms of this inabilities are more important than the inabilities by itself. Knowing & taking care of these patients can be result in decreasing these symptoms.

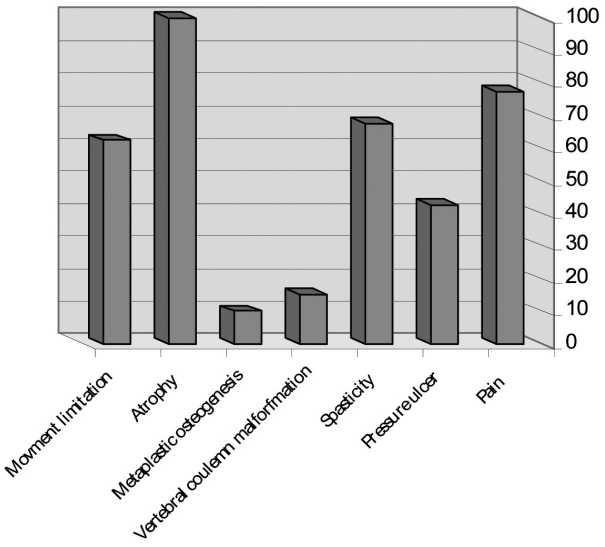

FIG. 1 Frequency of sign and symptom in all of patients N=120

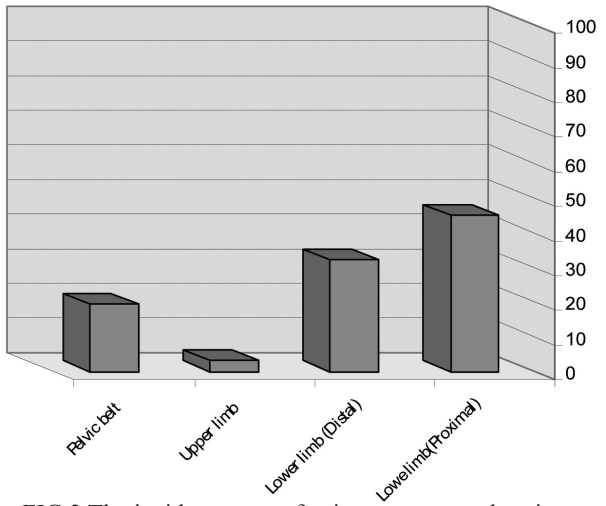

FIG.2 The incidence rate of pain symptom and region involvement

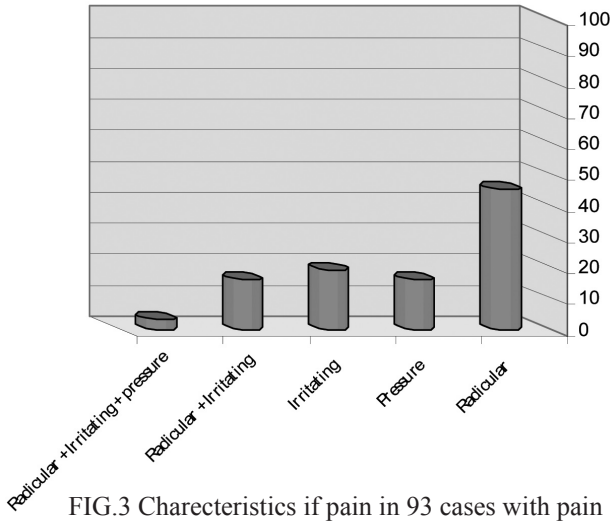

FIG.3 Charecteristics if pain in 93 cases with pain symptom

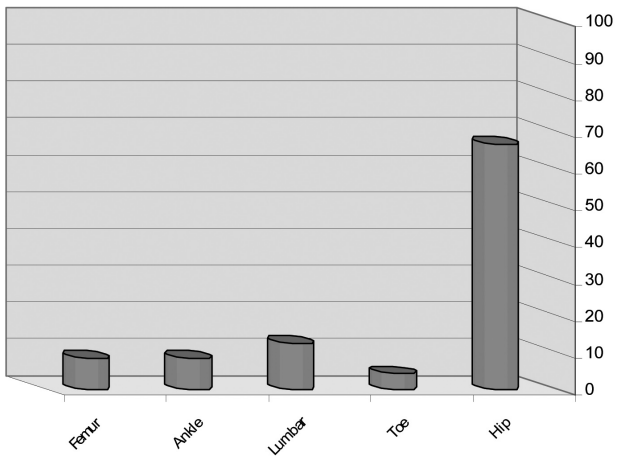

FIG.4 The incidence rate of pressure ucler and region involvement N=51

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