

FUNCTIONAL OUTCOMES OF TRAUMATIC PARAPLEGIA PATIENTS: DOES SURGERY IMPROVE THE QUALITY OF LIFE?

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Abstract:

Introduction: Number of spinal injuries is increasing day by day due to RTAs and falls. Complete paraplegia incidences also increasing in these injuries. Life expectancy and survivorship is falling down dramatically. Conservative treatment is associated with high incidences of complications. Return to work or socioeconomic life is almost rare. Major issue in these patients should be early stable fixation and return to work and social life.

Aims of study: To promote early stable fixation and early rehabilitation. How to reduce complications rate in the management of these patients & To devolve self-confidence and personal care regime.

Material & methods: Prospective Study was conducted at G R M C Gwalior from January 2006 to July 2015. All the patients having fractures or fracture dislocations of dorso-lumbar spine with neurological involvement were taken for fixation. Denis classification of thoracolumbar injuries was used. Total 110 cases taken for treatment, 20 cases underwent conservative methods while 90 were operated. Neurological status was assessed using the Frankel grading for spinal cord injury.

Results: 30% cases improved partially or completely, 60% not improved & 10% cases shown deterioration in the preoperative neurological status. Mean kyphosis improved from 28 degree to 10 degree at final follow up

Conclusions: Early & prompt management can improve the prognosis

& overall outcome. In comparison to conservative treatment, surgical fixation definitely results in better outcomes. Self-dependency, return to social & financial activities is big boon to the patients. Proper training in self care and boosting self confidence definitely makes a big difference in life of these patients.

Key words: Traumatic paraplegia, Surgical fixation, improves quality of life.

Introduction:

Number of spinal injuries is increasing day by day due to RTAs and falls. Most of Paraplegic patients after dorso-lumbar spine injury live pathetic life. Life expectancy and survivorship is falling down dramatically. Conservative treatment is associated with high incidences of complications. In pretext of no neurological recovery these patients usually are not advised for fixation and decompression. Rigid fixation and early mobilization has shown that even these patients can live longer and can earn and enjoy their life. Major issue in these patients should be early stable fixation and return to work and social life.

The aim of this study to promote early stable fixation and early rehabilitation & how to reduce complications rate in the management of these patients & to devolve self-confidence and personal care regime. Proper training of self-care and boosting up self-confidence definitely make a difference in life of these patients.

Material & Methods:

Prospective Study was conducted at G R M C Gwalior from January 2006 to July 2015. All the patients having fractures or fracture dislocations of dorso-lumbar spine with neurological involvement were taken for fixation. Total 90 cases were operated by 6 surgeons. 40 compression fractures, 55 burst fractures, & 15 cases of fractures subluxation / dislocations taken for fixation. Denis classification of thoracolumbar injuries was used. Neurological status was assessed using the Frankel grading for spinal cord injury. Most of patients were of Frankel grading A, BC, (complete/incomplete paraplegia) Surgical outcome was compared with

mechanical indicators like kyphosis angle, vertebral body height loss, neurological recovery & return to work etc. The neurological status of the study patients was documented at the time of admission and on the day of discharge and subsequent follow up visits. Frankel's grading -Spinal cord function;

Grade A: Complete paralysis

Grade B: Sensory function only below the injury level

Grade C: Incomplete motor function below injury level

Grade D: Fair to good motor function below injury level

Grade E: Normal function

Patients with suspected spine injuries were screened radiologically for cervical, dorsal & lumbar spine injuries. (x-ray & MRI) Assessment done to exclude any head injury, chest, abdominal injuries. Bladder & bowel functional status recorded. Neurological assessment of motor & sensory system. Unstable fractures or fracture-dislocations of dorso-lumbar spine with neurological involvement were taken for fixation. Most of surgeries were done within 5 -15 days of injuries. Patients were having polytrauma could be operated at later date. Short segment fixation was done with monoaxial screws in most of cases. Long segment fixations were required in when more than one vertebrae involved. Pedicle screws of 3.5mm, 4.5mm, in dorsal spine & 5.5mm, 6.5 mm in lumbar spine were used. Titanium pedicle screws & rods used in the view of further MRI evaluation of cord. Indirect and direct open decompression were done almost all cases. Posterior fusion was done in subluxation or dislocation cases. Facets, lamina were decorticated and bone grafts were placed. Indirect and direct open decompression were done

almost all cases accordingly. Outcome was compared with hospital stay, time to sitting in bed or chair, relief in pain, neurological recovery & return to work etc. The neurological status of the study patients was documented at the time of admission and on the day of discharge and subsequent follow up visits. Right from hospitalization, all the patients were encouraged to bed side turning, sitting in bed, sitting in wheel chair, self-catheterization, and taking care of their bladder and bowel functioning.

Complications:

(Which Commonly Seen In Patients Treated In Conservative Method And Those Can Be Avoided By Surgical Methods)

1. Pain in back forcing to lying in bed
2. Bed sores / pressure sores
3. Renal & pulmonary complications
4. Thrombosis & circulatory disorders
5. Bladder & bowel incontinence
6. Depression & impotence

Follow Up :

Immediate post op care (1-3 day);

All the post op patients are advised to bed side turning & sitting in the bed with brace Stimulation of bowel & bladder functions initiated. Check dressing on 3RD day. Oral liquids n soft diet started

Early post -op care (4-7 days); Bed side physiotherapy initiated. Passive joint mobilization & strengthening exercises. Wheel chair sitting & mobilization stated.

After discharge all patients were advised Bed side physiotherapy ,Regular care of back, bladder, bowel functions, Lying on soft cushion, foam, gel, inflatable cushions, Frequent changing position in bed, Supportive

medical treatment.

All patients were followed weekly up to 1 month, every 15 days for next 6 months & lastly once in month for 1-2 years. Assessment at a mean 5-year follow-up (range 2-8 y).

Observation Chart

S.No	Age in years/Sex	Fracture classification	Frankel's grading	Functional recovery
1	54/M	B	A	AVERAGE
2	47/M	C	C	GOOD
3	34/F	D	A	POOR
4	40/M	D	B	GOOD
5	30/M	C	C	EXCELLENT
6	58/M	B	C	GOOD
7	47/F	C	B	AVERAGE
8	28/M	B	A	AVERAGE
9	32/M	C	B	AVERAGE
10	42/M	B	C	EXCELLENT
11	50/M	B	C	EXCELLENT
12	38/M	D	B	AVERAGE
13	32/F	C	A	AVERAGE
14	34/M	D	A	POOR
15	48/M	C	A	AVERAGE
16	33/M	A	C	EXCELLENT
17	38/M	C	B	GOOD
18	48/M	C	B	AVERAGE
19	49/M	B	B	AVERAGE
20	46/M	C	B	GOOD
21	38/M	D	A	POOR
22	32/M	C	C	GOOD
23	43/M	B	C	EXCELLENT
24	31/M	D	A	AVERAGE
25	29/M	D	A	POOR
26	33/M	C	B	AVERAGE
27	39/M	B	C	GOOD
28	46/F	C	C	GOOD
29	32/M	B	B	AVERAGE
30	38/F	B	B	GOOD
31	30/M	C	B	GOOD
32	36/F	C	C	GOOD
33	38/M	C	C	EXCELLENT
34	27/F	A	B	GOOD
35	22/M	D	A	AVERAGE
36	37/F	D	A	POOR
37	48/F	C	B	AVERAGE
38	24/M	B	C	AVERAGE
39	32/M	C	C	EXCELLENT
40	42/M	C	B	GOOD
41	33/M	B	A	AVERAGE
42	39/M	C	C	EXCELLENT

43	46/F	C	A	AVERAGE
44	32/M	D	B	AVERAGE
45	38/F	C	C	GOOD
46	30/F	B	C	EXCELLENT
47	36/F	C	B	AVERAGE
48	38/M	B	A	GOOD
49	27/F	C	B	AVERAGE
50	22/M	B	C	GOOD
51	36/M	B	C	GOOD
52	30/M	D	B	GOOD
53	60/M	D	A	GOOD
54	47/M	D	B	AVERAGE
55	28/M	D	A	AVERAGE
56	32/M	A	C	EXCELLENT
57	42/M	C	B	AVERAGE
58	52/M	C	B	GOOD
59	38/M	C	C	GOOD
60	32/F	C	B	GOOD
61	28/M	D	A	POOR
62	32/M	C	C	GOOD
63	42/M	B	C	EXCELLENT
64	50/M	D	A	AVERAGE
65	38/M	D	A	AVERAGE
66	34/F	C	B	GOOD
67	34/M	B	C	GOOD
68	48/M	C	C	EXCELLENT
69	33/M	B	B	AVERAGE
70	38/M	B	B	POOR
71	47/M	C	B	AVERAGE
72	49/M	C	A	AVERAGE
73	46/M	C	C	GOOD
74	36/M	A	B	GOOD
75	32/F	D	A	GOOD
76	43/M	D	A	POOR
77	31/M	C	B	AVERAGE
78	29/M	B	C	EXCELLENT
79	33/M	C	C	GOOD
80	39/M	C	B	AVERAGE
81	36/F	C	B	AVERAGE
82	32/M	A	C	GOOD
83	28/F	B	C	GOOD
84	30/M	D	C	GOOD
85	28/M	B	D	EXCELLENT
86	32/M	C	C	GOOD
87	44/M	D	B	GOOD
88	50/M	A	C	GOOD
89	39/M	A	B	AVERAGE
90	32/F	C	D	EXCELLENT

Results :

Results were made after comparing the outcomes of operated patients with conservatively treated patients & with available literature.

Functional & Neurological recovery;

Surgical outcome was compared with mechanical indicators like kyphosis angle, vertebral body height loss, neurological recovery & return to work etc.

Functional Outcomes were compared with hospital stay, time to sitting in bed or chair, relief in pain, neurological recovery & return to work etc.

The neurological recovery was documented by improvement in muscle power, sensations, return of bowel & bladder functions

Neurological recovery;

30 % cases improved partially or completely,

60 % not improved &

10 % cases shown deterioration in the preoperative neurological status.

In conservative category, no patient was able to sit or mobilize even after 6 months of follow-up. About 15 patients developed bed sores & pulmonary complications. Implant failure seen in 4 patients.

Functional recovery

30 % cases are walking with or without support,

40 % cases are independent with moving in wheel chair or tricycle.

Overall 70% return to work & managing to earn their lives.

Complications:

1. Pain in back forcing to lying in bed
2. Bed sores /pressure sores
3. Renal & pulmonary complications
4. Thrombosis & circulatory disorders

5. Bladder & bowel incontinence

6. Depression & impotence

Discussion:

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% not improved & 10 % cases shown deterioration in the preoperative neurological status.

In our study ;

About 15 patients developed bed sores & pulmonary complications. Implant failure seen in 4 patients.

Surgical outcomes are better in operative group. Hospital stay was 5- 20 days whereas 15 -30 days in non-operative group. Time to sitting in bed or chair was 10 – 20 days. Pain relief was seen within 15 -20 days. Neurological recovery seen 20-30 % cases of operative group . In our study, return to work seen within 2-4 months of surgery ,30 % cases are walking with or without support, 40 % cases are independent with moving in wheel chair or tricycle. Overall 70% return to work & managing to earn their lives.

Conclusions:

Traumatic paraplegia is most devastating complication of all skeletal injuries. High rate of mortality is reported in this part of world. Early & prompt management can improve the prognosis & overall outcome. Surgical fixation definitively results in better outcomes with respect to Self-dependency, return to social & financial activities is big boon to the patients. Proper training in self-care and boosting self-confidence definitely makes a big difference in life of these patients.

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