VOLUME-7, ISSUE-5, MAY-2018 • PRINT ISSN No 2277 - 8160

Original Research Paper

Neurosurgery

A COMPARATIVE STUDY OF DECOMPRESSION VERSUS DECOMPRESSION WITH INSTRUMENTATION IN CASES OF THORACOLUMBAR POTT'S SPINE AT A TERTIARY CARE CENTRE IN NORTH INDIA

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ABSTRACT

AIM & OBJECTIVE: compare the immediate and long term outcome of patients of thoracolumbar Pott's spine treated by decompression and decompression with instrumentation.

MATERIAL & METHOD: In this study fifty patients were studied which was admitted in Neurosurgery department, J.A Group of hospitals, Gwalior M.P. with a diagnosis of thoracolumbar Pott's spine from February 2016 to August 2017. These patients were categorised into two groups, group A comprised of patients treated by decompression only and group B comprised of the patients treated by decompression with instrumentation both group comprised of twenty five patients. At the end evaluation of the results of decompression and decompression with instrumentation with a minimum follow-up of 6 months.

RESULT& CONCLUSION: After comparison of the results of the decompression alone and decompression with instrumentation, it was observed that after one month of follow up there was improvement in back pain was more in decompression alone group patients as compared to decompression with instrumentation group, but over all improvement in all other parameters at the follow up of one month , three months and six months decompression with instrumentation is much superior than decompression alone.

KEYWORDS : potts spine Decompression alone , decompression with instrumentation

INTRODUCTION-

Tuberculosis is a very common disease in developing countries affecting a large proportion of population. It is a major cause of mortality and morbidity in India. There are large number of cases having extra-pulmonary tuberculosis. Vertebral column is a common site for extra-pulmonary tuberculosis. The entity is called as Pott's spine. Pott's disease, described by Sir Percival Pott, is one of the oldest demonstrated diseases affecting humans [1,2]. The thoracolumbar spine is the most commonly affected, with less frequent involvement of the cervical and sacral spine [3,4]. Tuberculous spondylitis is diagnosed in the second, third, or fourth decade of life in developing nations, with a maletofemale ratio ranging from 1.3 : 1 to 1.7 : 1 [2,4,6–8]. Neurologic deficits with or without kyphotic deformities are a frequent sequelae of serious disease [9].

MATERIAL AND METHODS: Current study aimed to compare the immediate and long term outcomes of patients of thoracolumbar Pott's spine treated by decompression and decompression with instrumentation. Patients were randomised on the basis of feasibility, affordability and general medical condition of the patients, and a total of In this study fifty patients were studied which was admitted in Neurosurgery department, J.A Group of hospitals, Gwalior M.P. with a diagnosis of thoracolumbar Pott's spine from February 2016 to August 2017. These patients were categorised into two groups, group A comprised of patients treated by decompression only and group B comprised of the patients treated by decompression with instrumentation both group comprised of twenty five patients. At the end evaluation of the results of decompression and decompression with instrumentation with a minimum follow-up of 6 months. comparison of the results of both the groups was done and inference was made based on the data obtained from study. In following points.

1. Operative duration.
2. Neurological outcome
3. Mobility
4. Deformity
5. Back pain
6. Control of infection
7. Complication

OBSERVATION-

Table-1 Age wise distribution in Both Group-

Age in Years	No. of patients in group A	Percentage	No. of patients in group B	Percentage
<10	3	12%	1	4%
10-20	1	4%	3	12%
21-40	11	44%	9	36%
41-60	8	32%	9	36%
>60	2	8%	3	12%

Mean age in group A-37.2 and in group B-37.84 years

Table-2 Sex wise distribution in both group-

Sex	Number of patients in Group A	Percentage	Number of patients in Group B	Percentage
Male	13	52%	12	48%
Female	12	48%	13	52%

Table-3 Clinical features:

sign and symptoms	Number of patients	percentage
Backache	50	100%
Motor weakness in lower limb (paraparesis)	45	90%
Paraplegia	5	10%
Sensory Deficits	43	86%
Autonomic disturbances (Bowel and bladder involvement)	18	36%
immobility	44	88%

Table-4 Comparison of effectiveness between both procedure after 1 month-

Sign & Symtoms	Patients got relieved by Decompression alone %	Patients got relieved by Decompression with instrumentation %	P-Value
Pain relief	80	60	0.516
improvement in power	68	74	0.86
improvement in sensation	47.6	54.5	0.796

improvement in Autonomic system	25	30	0.859
Mobility	18	54.5	0.0322
improvement in Cobb's angle	24	72	0.0413

Table-5 Comparison of effectiveness between both procedure after 3 months-

Sign & Symtoms	Patients got relieved by Decompression alone %	Patients got relieved by Decompression with instrumentation %	P - Value
Pain relief	92	88	0.913
improvement in power	77	78	0.899
improvement in sensation	62	81.8	0.556
improvement in Autonomic system	25	50	0.466
Mobility	68	72.7	0.890
improvement in Cobb's angle	24	80	0.0234

Table-6 Comparison of effectiveness between both procedure after 6 months-

Sign & Symtoms	Patients got relieved by Decompression alone %	Patients got relieved by Decompression with instrumentation %	P - Value
Pain relief	96	88	0.8314
improvement in power	77	78	0.977
improvement in sensation	71.5	91	0.598
improvement in Autonomic system	25	50	0.466
Mobility	77	91	0.716
improvement in Cobb's angle	28	84	0.0312

Table-7 Post operative Complications

complications	Number of patients in Group A	Number of patients in Group B
Wound infection	2	4
Persistant pain	1	3
Paraplegia	3	2
Implant Failure		1
Fusion failure	5	4
vascular injury	0	0
Perioperative bleeding	0	2
Revision of surgery		1
Death	0	0

Table-8 Operative Duration-

operative procedure	operative time (Mean)
Decompression alone	90.35 minutes
Decompression with instrumentation	136.8 minutes

DISCUSSION-

It is estimated that almost six billion people are infected with TB and over nine million new cases of active TB occur annually with two to three million deaths. Extra pulmonary TB accounts for about 15–20% of all cases and nearly 1–3% of patients suffering from TB have involvement of the skeletal system.

Age and sex wise distribution of the patients

In present study patients have found that thoracolumbar Pott's spine presented in age group ranging from 4 years to 68 years, with mean age of 38.24 years, we have found that there were 25 (50%) male and 25 (50%) female patients.

Our study is also in accordance with M. Ehasei et al.(10), Park et al. (11) Kenyon et al. (12) ,Su et al. (13) ,Barriere et al. (14), Alothman et al. (15) and Solagberu et al. (16)

Clinical features

Among the 50 patients studied the most common symptom was back pain 50 (100%), fever detected in 12(24%), malaise in 9(18%) and weight loss in 25(50%) of cases. In neurologic examination 45(90%) had paraparesis. 43(86%) had sensory loss, 18(36%) of patients complained of sphincter problem, and immobility 44(88%) cases.

Our study is also in accordance with M. Ehasei et al.(10), Elbashir G Ahmed et al. (17), Fam et al. (18), Pertuiset et al. (19), Leibert et al. (20) and Puigdengolas et al. (21)

COMPARISON OF THE RESULTS OF THE TWO PROCEDURE

After comparison of the results of the decompression alone and decompression with instrumentation, it was observed that after one month of follow up there was improvement in back pain was more in decompression alone group patients as compared to decompression with instrumentation group, power and sensation and bowel bladder function was more or less similar in both the groups and no significant difference in either group while there was significant improvement in mobility and Cobb's angle improvement in decompression with instrumentation group as compared to decompression alone group patients.

After three months of follow up improvement in back pain, power, sensation, bowel bladder function and mobility was more or less similar in both the groups and no significant difference in either group while there was significant improvement of Cobb's angle in decompression with instrumentation group as compared to decompression alone group patients.

After six month of follow up it was observed that improvement in back pain, power and mobility more or less similar in both the groups and no significant difference in either group while there was more improvement in sensation and bowel bladder function, in decompression with instrumentation group but improvement was not statistically significant. While significant improvement was found in Cobb's angle in decompression with instrumentation group as compared to decompression alone group patients.

Moreover in decompression alone there was only decompression of cord was done and the pressure over the cord was removed but the spine became unstable so it hampers the mobility and therefore increased deformity was found in the decompression alone group while in other group decompression with instrumentation spine was stable so there was improvement in Cobb's angle and minimal deformity of spine and improved mobility as spine was stabilised patients were mobilised early in compare to decompression alone group.

Our study is also in accordance with Fam et al. (18), Pertuiset et al. (19) & Leibert et al. (20).

CONCLUSION

It is thus clear that the decompression with instrumentation group is the surgical procedure of choice for thoracolumbar Pott's spine as this is simple, safe procedure with improved stability of spine and improved and early mobility on long term follow up.

References

1. Taylor GM, Murphy E, Hopkins R, Rutland P, Chistov Y. First report of Mycobacterium bovis DNA in human remains from the Iron Age. Microbiology 2007; 153:1243–1249.
2. LifesoRM,WeaverP,HarderEH.Tuberculous spondylitis in adults .AmJ Bone Joint Surg 1985; 67:1405–1413.
3. Lee TC, Lu K, Yang LC, Huang HY, Liang CL. Transpedicular instrumentation as an adjunct in the treatment of thoracolumbar and lumbar spine tuberculosis with early stage bone destruction. J Neurosurg 1999; 91:163–169.
4. Gorse GJ, Pais MJ, Kusske JA, Cesario TC. Tuberculous spondylitis: a report of six cases and review of the literature. Medicine (Baltimore) 1983; 62:178–193.
5. BanerjeeA,TowDE.Tuberculous spondylitis.In:GorbachSL,BartlettJG, Blacklow NR,

editors. Infectious diseases. Philadelphia: WB Saunders; 1992. 1569–1572.
6. Five-year assessments of controlled trials of ambulatory treatment, debridement and anterior spinal fusion in the management of tuberculosis of the spine. Studies in Bulawayo (Rhodesia) and in Hong Kong. Sixth report of the Medical Research Council Working Party on Tuberculosis of the Spine. J Bone Joint Surg Br 1978; 60:163–177.
7. A 10-year assessment of a controlled trial comparing debridement and anterior spinal fusion in the management of tuberculosis of the spine in patients on standard chemotherapy in Hong Kong. Eighth Report of the Medical Research Council Working Party on Tuberculosis of the Spine. J Bone Joint Surg Br 1982; 64:393–398.
8. A 10-year assessment of controlled trials of inpatient and outpatient treatment of plaster-of-Paris jackets for tuberculosis of the spine in children on standard chemotherapy. Studies in Masan and Pusan, Korea. Ninth report of the Medical Research Council Working Party on Tuberculosis of the Spine. J Bone Joint Surg Br 1985; 67:103–110.
9. Jain AK, Kumar S, Tuli SM. Tuberculosis of spine [C1–D4]. Spinal Cord 1999; 37:362–369.
10. M. Ehasei et al (Medical Journal of the Islamic Republic of Iran.Vol. 23, No. 4, February, 2010. pp. 200-206).
11. Park DW. Outcome and management of spinal tuberculosis according to the severity of disease: a retrospective study of 137 adult patients at Korean teaching hospitals. Spine (Phila Pa 1976) 2007;32:E130–E135.
12. Kenyon PC, Chapman AL. Tuberculous vertebral osteomyelitis: findings of a 10-year review of experience in a UK centre. J Infect. 2009;59:372–373.
13. Su SH, Tsai WC, Lin CY, Lin WR, Chen TC, Lu PL, et al. Clinical features and outcomes of spinal tuberculosis in southern Taiwan. J Microbiol Immunol Infect. 2010;43:291–300.
14. Barriere V, Gepner P, Bricaire F, Bletry O, Caumes E. Current aspects of spinal tuberculosis: apropos of 16 case reports. Ann Med Interne (Paris) 1999;150:363–369.
15. Alothman A, Memish ZA, Awada A, Al-Mahmood S, Al-Sadoon S, Rahman MM, et al. Tuberculous spondylitis: analysis of 69 cases from Saudi Arabia. Spine (Phila Pa 1976) 2001;26:E565–E570.
16. Solagberu BA, Ayorinde RO. Tuberculosis of the spine in Ilorin, Nigeria. East Afr Med J. 2001;78:197–199.
17. Ahmed EG, Elbadawi NEE, Ibrahim EK, Mohammed MM (2013) Clinical Presentation of Pott's disease of the Spine in Adult Sudanese Patients. J Med Microb Diagn 2: 120.
18. Fam AG, Rubenstein J. Another look at spinal tuberculosis. J Rheumatol. 1993;20:1731–1740.
19. Pertuiset E, Beaudreuil J, Lioté F, Horusitzky A, Kemiche F, Richette P, et al. Spinal tuberculosis in adults. A study of 103 cases in a developed country, 1980–1994. Med (Balt) 1999;78:309–320.
20. Leibert E, Schluger NW, Bonk S, Rom WN. Spinal tuberculosis in patients with human immunodeficiency virus infection: clinical presentation, therapy and outcome. Tuber Lung Dis. 1996;77:329–334.
21. Puigdengolas X, Iranzo D, Pol M, Perez R, Ubierna MT, Olive A, et al. Tuberculous spondylodiscitis. Retrospective study of 14 cases. Rev Esp Reumatol. 1993;20:151–154.