ORIGINAL ARTICLE

Outcome of Ambulatory Chemotherapy in Caries Spine Patients

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ABSTRACT

Background: Tuberculosis remains a major public-health problem in most of the world. Despite the reduction in the prevalence of the tuberculosis and the advent of anti-tuberculous drugs, the incidence of extra pulmonary tuberculosis continues to increase in the world. In spite of all the advances regarding diagnosis, treatment and total control of many diseases, this slow but grave disease still affects considerable number of cases and makes them disabled and even paralyzed.
Aim: To assess the outcome of ambulatory chemotherapy in caries spine.
Methodology: This is a descriptive case series study carried out in Orthopaedic Department at Shaikh Zayed Hospital, Lahore within a period of six months from October 2018 to March 2019. A total of fifty patients were included in this study from 18-60 years of age. Clinical examination performed for sinus, abscess and biplane X-rays of affected area of these patients were taken.
Results: Out of 50 patients, 19 were males and 31 were females between 18-60 years. According to site of lesion thoracic spine was commonly involved (24 patients), lumbar spine in 16 patients followed by thorocolumbar junction in 10 patients. At end of follow-up, 30 patients achieved favourable status and 20 patients had unfavourable status.
Conclusion: Current study gave uniformly echo the fact that spinal tuberculosis is a "medical condition" and can be effectively treated by ambulatory chemotherapy.
Keywords: Caries spine, Ambulatory chemotherapy, Anti-tuberculous therapy,

INTRODUCTION

Worldwide tuberculosis (TB) is the most common cause of infection-related death[1]. In 1993, the World Health Organization (WHO) declared tuberculosis to be a global public health emergency. Mycobacterium tuberculosisis the causative microorganism of tuberculosis in humans. Three related organisms mycobacterium tuberculosis, mycobacterium africanum and mycobacterium bovis are the causes of tuberculosis. Mycobacterium tuberculosis is by far the most common. Mycobacterium africanum is rarely found outside of Northwestern Africa, and disease due to mycobacterium bovis is limited in developed countries due to widespread pasteurization of milk[2]. Spinal tuberculosis often called Pott's disease or caries spine is by definition, an advanced extrapulmonary manifestation of tuberculosis caused by mycobacterium tuberculosis complex affecting vertebral column[3].

Osteoarticular tuberculosis represents 3-5% of all cases of tuberculosis and between 10-15% of extrapulmonary tuberculosis. Spinal tuberculosis represents 50% of osteoarticular form[4]. On gender basis tuberculosis spine is more common in males than females with the ratio of 1.5-2:1. Percivall Pott gave his name to spinal deformity with curvature due to abscess and vertebral destruction associated with paralysis of lower limbs as Pott's paralysis[5,6].

The impact of acquired immunodeficiency syndrome (AIDS) has increased resurgence of TB in developed countries especially in elderly. TB is also a leading cause of death among human immunodeficiency virus (HIV) positive people and account for about 13% of AIDS death worldwide[7]. Caries spine is an increasingly common pattern of TB all over the world, with estimated prevalence of 800,000 cases[8].

Initially treatment was by bed rest, improvement in nutritional status and chemotherapy. Recent advances in pharmacological treatment of tuberculosis have changed the management of this disease. Specific and effective ambulatory chemotherapy is now the mainstay of treatment. Nene and Bojraj[9] reported results of 74% favorable status achieved with non-surgical ambulatory chemotherapy. Tuberculous spondylitis being endemic in underdeveloped countries including Pakistan and ranks 6th among the 22 high-burden tuberculosis countries worldwide, posing strong economical set back to whole family and state[7,10].

MATERIAL AND METHODS

Tuberculosis of spine involving any vertebra in dorsolumbar region. Age 18-60 years, patients of both sexes .Patients attending the Orthopaedics Outpatient Department at Shaikh Zayed Hospital, Lahore for treatment of back pain was my study population. They were explained about the study and an informed consent got signed about their inclusion in the study. The demographic profile (i.e. age, sex) were noted. Clinical examination was performed for sinus or abscess and biplane x-rays of affected area were taken. Ambulatory chemotherapy was started with initial phase of four drugs.

Patients were followed up in outpatient department and pain was rated using NRS. Outcome of the study was evaluated at the end of 12th week from start of chemotherapy. Outcome was ascertained favorable if there was no symptom of pain, no sinus or abscess on clinical examination and radiological healing of spinal lesion at the

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end of 12 weeks. Effect modifier like age was addressed using stratification.

RESULTS

In this study 19 (38%) patients were male and 31 female (62%). Male to female ratio was 1:1.6 (Table 1). The mean±SD between the age was 34.62±13.95 years (Table 2). According to the site of lesion involvement of thoracic spine was mostly involved 24 patients (48%), thoracolumbar junction in 10 patients (20%) and lumbar spine in 16 (32%) (Table 3). All the patients were having pain prior to starting treatment. At the end of study 37 (74%) patients were pain free and pain did not improved in 13 (26%) patients. Twelve of 50 patients were having sinus or abscesses at the start of treatment. At the end of study 5 patients (41.67%) remained with sinus or abscesses clinically. All the patients were having radiological active disease prior to starting treatment. At the end of study 30 patients had radiological healing of spinal lesion.In 20 patients (40%) there is no radiological healing (Table 4,5). At the end of 12 weeks after start of ambulatory chemotherapy, favourable status achieved in 30 patients (60%) and 20 patients (40%) remained with un-favourable status (Table 6).

Table 1: Frequency distribution of patients according sex (n = 50)

Gender	**No.**	**%**
Male	19	38.0
Female	31	62.0
Male to female ratio	1:1.6	

Table 2: No.distribution of patients according to age(n = 50)

Age (years)	**No.**	**%**
18 – 32	26	52.0
33 – 46	13	26.0
47 – 60	11	22.0
Mean±SD	34.62±13.95	

Table 3: No. distribution according to site of lesion (n = 50)

Site of lesion	**No.**	**%**
Thoracic	24	48.0
Thoracolumbar junction	10	20.0
Lumbar	16	32.0

Table 4: Pre-treatment frequencies of variable

	No.	**%**
Pain (using NRS)	50	100.0
Sinus or abscess	12	24.0
Radiological healing	-	-

Table 5: Follow-up after 12 weeks

	No.	**%**
Pain (using NRS)	13	26.0
Sinus or abscess	5	41.67
Radiological healing	30	60.0

Table 6: No. distribution according to final outcome(n = 50)

Outcome	**No.**	**%**
Favourable	30	60.0
Unfavourable	20	40.0

DISCUSSION

Tuberculosis remains a major public-health problem in most of the world especially in developing countries[11]. Though there has been a remarkable improvement of pulmonary tuberculosis management, but treatment of tuberculous spondylitis whether surgical or conservative is still controversial. With the advent of the chemotherapy, there has been a general inclination towards conservative form of therapy[12].

In a study done by Nene and Bhojraj[9] the average age of the patients was 37 years. In another study done by Parthasarathy et al[13], the mean age of the patients was younger age group. In a study by Park et al[10] the average age of the patients was 44.07±16.57 years. In our study the average age of the patients at the time of the chemotherapy was 34.62±13.95 years with range18 to 60 years.

Patients presented at younger age in present study which is comparable with the study conducted by Nene and Bhojraj[9] in India (same subcontinent). In under developed countries it effects the people of the younger age group. In the developed countries it involves people at the extreme of age mostly old people.

Out of 50 patients 31 (62%) were female and 19 (38%) were male. The male to female ratio was 1: 1.63. In a study done by Nene and Bhojraj[9] and reported 71% female and 29% male. In another study by Parthasarathy et al[13] reported 47.40% were females and 52.60% males. In a study done by Dharmalingam[14] reported 27% women and 73% men.In a study by Kursat et al[15] reported 29% were females and 71% males. In a study by Park et al[10] reported 69 patients were males (50.40%) and 68 were females (49.60%). In our study, there is female predominance as they constitute 52% population of our society where male gender is given preference over females in all aspect of life. For that reason, they could not fulfill their nutritional demands and remained prone to diseases like tuberculosis.

In a study by Nene and Bhojraj[9] who only included cases of thoracic spine. In the study thoracic involvement was (85%) and thoracolumbar junction in (15.7%). Parthasarathy et al[13] reported that thoracic involvement was (37%) and lumbar involvement (42%) and followed by thoracolumbar junction in (14%).In a study by Parket al[10] reported thoracic involvement was (33.1%) and lumbar involvement (44%) and followed by thoracolumbar junction in (9.7%).

In our study, the most common vertebral area involved was the thoracic (48.0%) then Lumbar (32%) and thoracolumbar junction (20%) Preponderance in dorsal spine is due to close anatomical relationship with lungs, which is the most common site for tuberculous seeding[16,17].

In study by Nene and Bhojraj[9] reported the abscesses resolved with medical treatment in follow up of 40 months. In 12th report of the MRCW party on tuberculosis of the spine the rate of resolution was similar in all the series 83% lesions resolved by 12 months.[18] In study by Parthrasaranthy[13], 80% abscesses resolved in 12 months. In our study 12 patients with sinus and abscesses on admission, 7 patients (58.3%) resolved in 12 weeks. Results of present study were inferior to other studies which were of long duration and follow-up as abscesses or sinuses required longer duration to resolve.

In study by Nene and Bhojraj[9] reported the radiological healing in 74% of cases in 12 months. In another study done by Parthrasaranthy[13] 80% by six years. In my study radiological healing of spinal lesion was observed in 60% patients in 12 weeks. Radiological healing was inferior in

present study as study was of short duration. Results may be improved with longer study duration and follow-up.

In a study by Nene and Bojraj[9] reported results of 74% favourable status achieved with nonsurgical ambulatory treatment in 12 months. In a study by Parthrasaranthy[13] who reported favourable status in 94% patients in 10 years. MRC&WP reported 77% favourable status in 3 years.[18] In present study, 60% patients achieved favourable status in 12 weeks. Our results were inferior to the other studies, because its short duration study. Results can be improved with longer study duration and follow-up.

CONCLUSION

With the advent of chemotherapy and understanding the resistance now ATT is the mainstay in the treatment of caries spine. Uncomplicated cases of caries spine is a medical condition and can effectively managed with ambulatory chemotherapy in a vast majority of cases and indications for surgery are few and specific. So my conclusion is ambulatory chemotherapy very effective in the treatment of spinal TB, involving vertebral bodies without paraplegia. For better evaluation study with longer duration and follow-up needs to be conducted.

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