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POTT'S SPINE: A TUBERCULAR SPONDYLITIS DISEASE DEVELOPED DUE TO IMPROPER TREATMENT OF MDR-TB

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ABSTRACT Pott's disease, also known as tuberculous spondylitis, is one of the oldest demonstrated diseases of humankind. Pott's disease is named after Percival Pott (1714-1788) who was a surgeon in London. Tuberculous involvement of the spine has the potential to cause serious morbidity, including permanent neurologic deficits and severe deformities. Potential constitutional symptoms of Pott's disease include weakness, loss of appetite, loss of weight, evening rise of temperature etc… Clinical findings include back pain, paraparesis, kyphosis. Management of this involves medical treatment, surgery (in case of disease progression or failure of treatment) and physical treatment. In this case study, a 30 year old female patient was admitted in hospital with a complaint of hotness of body, pain in spinal region since 1 year. From her past medical history and other imaging tests she was diagnosed with Pott spine. The patient was treated for the concerned disease or the patient was given symptomatic treatment. At the time of discharge as clinical pharmacists, we counseled the patient regarding the factors aggravating the disease and importance of medication adherence and also particularly about the physical therapy.

KEYWORDS : tuberculous spondylitis, neurologic deficits, paraparesis.

INTRODUCTION

Pott disease is the most dangerous form of musculoskeletal tuberculosis because it can cause bone destruction, deformity, and paraplegia.[1,2,3,4] The lower thoracic vertebrae make up the most common area of involvement (40-50%), followed closely by the lumbar spine (35-45%). [5] Approximately 10% of Pott disease cases involve the cervical spine. [6]

A 4-drug regimen should be used empirically to treat Pott disease. [7] Isoniazid and rifampin should be administered during the whole course of therapy. Additional drugs are administered during the first 2 months of therapy. These are generally chosen from among the first-line drugs, which include pyrazinamide, ethambutol, and streptomycin. The use of second-line drugs is indicated in cases of drug resistance.[8]

Patients with Pott disease should be closely monitored to assess their response to therapy and compliance with medication. Directly observed therapy may be required. The development or progression of neurologic deficits, spinal deformity, or intractable pain should be considered evidence of poor therapeutic response. This raises the possibility of antimicrobial drug resistance, as well as the necessity for surgery.[9]

CASE STUDY

A 30 year old female patient got admitted in Maharajah's Institute of Medical Sciences, Nellimarla, Vizianagaram with a complaint of fever, hotness of body, pain in spinal region since 1 year.

History of present illness: The patient present has complaint of fever, hotness of body and pain at spinal region since 1 year, pain radiating to both lower limbs.

Past history: Patient has history of tuberculosis since one month and was on Antitubercular Therapy (ATT) now.

Personal history: Patient takes mixed diet. Bowel and bladder characteristics are normal, sleep and appetite decreased.

Vitals: BP was 120/90mm of Hg, pulse rate was 76beats/min, respiratory rate was 18breaths/min, spO2-97% and temperature was afebrile.

Local examination: Tenderness diffuse over lumbar region. Able to distinguish hyperasthic pain. Anterior wedge compression was observed on L2, L3 vertebrae.

Laboratory Findings: Neutrophils-63%, Lymphocytes-33%, Basophils-2%, Monocytes-2%, Hb-10.1gm%* (12-15gm%), WBC-6000cells/cumm, RBC-4.5millions/cumm, Platelets-1.8lakhs/cumm, ESR-80mm/1st hr# (10-20mm/hr),MCV-68.5fl* (83-101fl), MCH-22pg* (27-32pg), MCHC-32g/dL, PCV-31%* (36-46%) Serum creatinine-0.9mg/dL, Blood urea-32mg/dL.

Low hemoglobin levels indicate the patient has anemia. Elevated ESR indicates presence of inflammation in the body. Low value of MCV is indicative of small average RBC size (microcytic). Low MCH value is indicative of hypochromic anemia. PCV value is also suggestive of anemia.

Impression indicates Hypochromic Normocytic Anemia.

MRI imaging: L2 and L3 vertebral bodies shows altered signal intensity in the form of T1 hypointense and T2 hyperintense. L3 vertebral body shows reduced height with irregularity of superior endplate. Pre and paravertebral soft tissue component noted at L2-L3 level with epidural extension indenting traversing nerve roots.

Left psoas abscess noted measuring 4.9 x 2.5cms.

Rest of the vertebral heights, alignment and marrow signal are normal. Lumbar canal diameters in mid sagittal plane are normal.

Impression indicates L2, L3 vertebral bodies shows altered signal intensity with L3 vertebral body showing reduced and superior endplate irregularity associated with pre and paravertebral soft tissue component extending into epidural space indenting traversing nerve roots.

THERAPY:
Medication chart

DAY	MEDICATION	DOSE	ROUTE	FREQUENCY
1	Inj.Myoril (Thiocolchicoside) Inj.Nurokind Gold(Multivitamin) Tab.Limcee (Ascorbic aicd) Tab.Shelcal (calcium + vit.D3) Continue Antitubercular therapy (Isoniazid, rifampin, pyrazinamide, ethambutol)	4mg 1amp	IV IM Oral Oral Oral	BD Alternate day OD OD
2	Inj.Myoril Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Continue Antitubercular therapy Tab.Livogen-XT (Iron,Folic acid Zinc)	4mg 1amp	IV IM Oral Oral Oral Oral	BD Alternate day OD OD OD
3-5	Inj.Myoril Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Continue Antitubercular therapy	4mg 1amp	IV IM Oral Oral Oral	BD Alternate day OD OD
6-9	High Protein Diet Inj.Myoril Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Continue Antitubercular therapy	4mg 1amp	IV IM Oral Oral Oral	BD Alternate day OD OD
10	High Protein Diet Inj.Myoril Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Continue Antitubercular therapy Inj.Tramadol Inj.Fortwin (Pentazocine)	4mg 1amp 1amp 1amp	IV IM Oral Oral Oral Slow IV IV	BD Every 3rd day OD OD TID Stat
11-14	High Protein Diet Inj.Myoril Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Continue Antitubercular therapy	4mg 1amp	IV IM Oral Oral Oral	BD Every 3rd day OD OD
15-30	High Protein Diet Inj.Myoril Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Continue Antitubercular therapy Syrup Dexorange (vitamins and minerals)	4mg 1amp 5ml	IV IM Oral Oral Oral Oral	BD Every 3rd day OD OD OD
31-34	High Protein Diet Inj.Myoril Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Syrup Dexorange Continue Antitubercular therapy Tab.Hifenac-P (Aceclofeac +paracetamol)	4mg 1amp 5ml 100mg	IV IM Oral Oral Oral Oral Oral	BD Every 3rd day OD OD OD BD
35-36	High Protein Diet Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Syrup Dexorange Continue Antitubercular therapy Tab.Hifenac-P	1amp 5ml 100mg	IM Oral Oral Oral Oral Oral	Every 3rd day OD OD OD SOS
37-47	High Protein Diet Inj.Nurokind Gold Tab.Limcee Tab.Shelcal Syrup Dexorange Continue Antitubercular therapy Tab.Hifenac-P Cap.Neurobion	1amp 5ml 100mg	IM Oral Oral Oral Oral Oral	Thrice a week OD OD OD SOS OD

On first day, the general characteristics were fair, vitals were stable with BP-120/90mm of Hg, pulse rate-72beats/min and temperature was afebrile. Inj.Myoril- 4mg, BD which is a muscle relaxant with anti-inflammatory and analgesic activity for pain, Inj.Nurokind-1amp, IM on alternated day as multivitamin to treat anaemia, Tab.Limcee- OD which is a vitamin C supplement, Tab.Shelcal- OD which is a calcium supplement for bone deformity, and Antitubercular therapy were given.

On second day, the general characteristics were fair, vitals were stable and the patient has a complaint of lower back. Inj.Myoril- 4mg, BD, Inj. Nurokind Gold- 1amp, alternate day, Tab.Limcee- OD, Tab. Shelcal- OD, Antitubercular therapy were continued. Tab. Livogen-XT – OD, which is an anti anemic was added to improve the hemoglobin levels in blood.

From third to fifth day, general characteristics were fair and vitals were stable. Inj.Myoril- 4mg, BD, Inj.Nurokind Gold- IM, OD, alternate days, Tab.Limcee- OD, Tab.Shelcal-OD were given. Antitubercular therapy was continued.

From sixth day to ninth day, general characteristics were fair and vitals were stable, high protein diet was advised and same medication was continued.

On tenth day, the patient had complaint of severe pain at lumbar spine area. On examination, bony deformity and severe tenderness were seen at lumbar spine. Inj.Tramadol- 1amp given through slow IV, TID and Inj.Fortwin- 1amp, IV, stat, which are opiod analgesics were given to relieve pain. Same medication was continued. Diet generalization was done.

From eleventh day to fourteenth day, the general characters were fair and vitals were normal and patient was afebrile. Antitubercular therapy, Inj.Myoril, Inj.Nurokind, Tab.Limcee, Tab.Shelcal was continued and high protein diet was advised.

On fifteenth day, Syrup Dexorange – 5ml, OD was added. Same medication was continued till day thirty.

On day thirty one, Tab.Hifenac-P – twice a day was added to reduce pain. Physiotherapy was started.

On day thirty five, Inj.Myoril was stopped.

On day thirty six, the patient had a complaint of pain in right paraspinal area.

On day thirty seven, Cap.Neurobion- OD was given as vitamin supplement and the medication is continued till day forty seven.

DISCHARGE MEDICATION:
The patient condition was stable and conservative at the time of discharge and the following medication was given:

Protein powder, Inj.Nurokind-IM, once weekly, Tab.Limcee-OD, Tab.Shelcal-OD, Syp.Dexorange-5ml

CONCLUSION
Pott's disease is a rare disease which has tuberculous involvement of the spine and has the potential to cause morbidity as well as neurological deficits. Accurate diagnosis of pott's spine is difficult because similar symptoms are seen with spine tumor, septic arthritis, and spinal cord abscess. In this case the clinical pharmacist monitored the patient for post surgery management and to achieve the clinical stability of the patient. During counseling session the patient was educated regarding the importance of medication adherence as ATT involves long term therapy. The patient was motivated to follow physical exercise techniques. As the patient belongs to tribal area and is

uneducated, she was referred to nearest RNTCP center for continuation of treatment.

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