

EPIDEMIOLOGICAL, CLINICO-PATHOLOGICAL, THERAPEUTIC PROFILE OF MULTIPLE MYELOMA IN A TERTIARY HOSPITAL (K. R. HOSPITAL), MYSORE, INDIA

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**Abstract**

Background: Plasma cell neoplasms is a spectrum of disorders that include monoclonal gammopathy of undetermined significance (MGUS), smoldering multiple myeloma, multiple myeloma, macroglobulinemia. **Objective:** To study the Epidemiological, Clinico-pathological, Therapeutic profile of multiple myeloma in a tertiary hospital (K. R. Hospital), Mysore. **Material & Methods:** 50 patients of Multiple myeloma were diagnosed by urine Bence Jones with heat coagulation method, Serum protein electrophoresis, bone scan. The incidence, frequency, clinical presentation, therapeutic assessment was done and analysed. **Results:** The mean age of males was 68 and females 59 appropriately. The male/female ratio of Multiple myeloma was found to be 1.5:1. 70% patients presented with symptoms of anemia and bony pain. 15% presented with renal failure remaining 15% presented with history of quadriplegia/ paraplegia. 60% of patient presented M band Electrophoresis and remaining 40% presented with altered renal profile and multiple bony lytic lesions. **Conclusion:** 50 multiple myeloma patients were evaluated for period of one year at tertiary hospital (K R Hospital).

INTRODUCTION

Plasma cell neoplasms are defined by monoclonal proliferation of plasma cells and secretion of M-proteins. In 2014 the international myeloma working group revised the diagnostic criteria for multiple myeloma using specific bio markers and traditional end organ damage parameters. The diagnosis of multiple myeloma currently requires 10% or more clonal bone marrow plasma cells. The diagnostic criteria also allow the use of ct, pet ct, bone scan.^[1] The ASR for multiple myeloma in India is 0.7/1/lakh population with 7000 new cases per year.^[2,3,4] Multiple myeloma accounts for 10% of haematological malignancy. approximately 35,000 new cases were expected to prevail in united states alone by 2022. Multiple myeloma is twice as common in African americans compared to whites and slightly more common than females. The median age of diagnosis is 66years and only 2% of cases are less than 40 years.^[5] The introduction of immune modulated drugs and autologous stem cell transplantation have decreased the mortality and morbidity of multiple myeloma.^[6,7]

The new ISS classification of multiple myeloma is based on high risk biomarkers and radiological diagnostic points.^[8,9,10]

This study is an attempt to study the clinicopathological and therapeutic profile of Multiple myeloma in K.R. Hospital, Mysore.

MATERIALS AND METHODS

50 patients presented to department of general medicine at K.R. Hospital attached to Mysore Medical college were evaluated for period of one year from Jan 2021 to Jan 2022. The diagnosis of multiple myeloma were based on revised international staging system for multiple myeloma and old diagnostic system was also considered.

The diagnosis of multiple myeloma was based on the following staging.^[11]

Diagnosis of Multiple Myeloma Major Criteria

1. I = Plasmacytoma on tissue biopsy
2. II = Bone marrow with greater than 30% plasma cells
3. III = Monoclonal globulin spike on serum protein electrophoresis, with an immunoglobulin G (IgG) peak of greater than 3.5 g/dL or an immunoglobulin A (IgA) peak of greater than

2g/dL, or urine protein electrophoresis (in the presence of amyloidosis) result of greater than 1 g/24 h.

Minor Criteria

- a. = Bone marrow with 10-30% plasma cells
- b. = Monoclonal globulin spike present but less than category III
- c. = Lytic bone lesions d = Residual normal immunoglobulin M (IgM) level of less than 50mg/dL, IgA level of less than 100 mg/dL, or IgG level of less than 600 mg/dL.

The following combinations of findings are used to make the diagnosis

- I plus b
- I plus c
- I plus d
- II plus b
- II plus c
- II plus d
- III plus a

- III plus c
- III plus d
- a plus b plus c or a plus b plus d.

RESULTS

50 Multiple Myeloma cases were evaluated during the study period out of 50 cases, 30 males(60%) and 20 females (40%).Most of them (60%) belongs to 51 to 70 age group. mean age of males was 68 and females 59 appropriately. The male/female ratio of Multiple myeloma was found to be 1.5:1. 70% patients presented with symptoms of anemia and bony pain. 15.5% presented with renal failure remaining 14.5% presented with history of quadriplegia/ paraplegia. 60% of patient presented M band Electrophoresis and remaining 40% presented with altered renal profile and multiple bony lytic lesions.

Table1: Symptoms

Symptoms	Total	
	Number	%
Anaemia	35	70
Bony pain	35	70
Neurological manifestation	7	14.5
Oliguria/oedema	8	15.5

Table 2: Laboratory findings

	Number	Percentage
Anemia	35	70
M Band	30	60
Bone scan/ pet CT	25	50

DISCUSSION

The gender ratio of Multiple myeloma is 1.4:1.12 In our study Multiple Myeloma cases comprises of 30 males and 20 females and male/female ratio of Multiple myeloma is 1.5:1 and most of them belong to 51 to 75 age group. The mean age of males were 68 and females were 59. A study conducted by Fousad et al,^[13] found male to female ratio was 1.3:1. Mean age of the patients in the study population was 62 years. Diwan et al,^[14] found that out of total 20 patients, 10 were males and 10 were females with sixth decade as the common age group at presentation. The age of patients ranged from 39 to 83 years with a mean age of 64 ± 10.77 years. Seventh decade was found to be the most common age group in our study population. Mean age of the patients in the study population was 62 years and one patient was above 70 years of age.

Fouad et al,^[13] found that the commonest symptoms noticed were fatigue 32 (100%) and bone pain 31 (96.9%). 6 (18.8%) patients had hypercalcemia and 7 (21.9%) patients had elevated serum creatinine levels. Diwan et al,^[14] found common clinical symptoms were bone pains, localized body swelling, fever, generalized weakness and fatigue and motor weakness of lower limbs. Clinical examination revealed pallor in 80% patients, bony

tenderness in 85% patients and 55% patients presented with infections.

In our study 70% patients presented with symptoms of anemia and bony pain. 15% presented with renal failure remaining 15% presented with history of quadriplegia/ paraplegia. 60% of patient presented M band Electrophoresis and remaining 40% presented with altered renal profile and multiple bony lytic lesions.

The present study showed 35(70%) patients presented with features of anemia and renal failure, 30(60%) had M band in serum electrophoresis profile and 25 (50%) presented with osteolytic lesions in Pet CT study. Out of 50 patients 31 patients were enrolled for chemotherapy (BCD/VTD Regimine= injbortezomib, thalidomide, cyclophosphamide, dexamethasone) remaining 19 patients were not enrolled for chemotherapy due to poor performance score.

CONCLUSION

Multiple myeloma is an evolving clonal plasma cell disorder. We conclude that most of the patients were in sixth decade. Features of anemia and bony pain was most common presenting symptom. Most of the patients presented with ISS II, III. What is most

alarming is increase in the percentage of patients presenting with renal involvement.

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