Myeloma in the Young

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ABSTRACT

Introduction: Multiple myeloma (MM) is a neoplastic plasma cell proliferation involving the bone marrow and extraosseous tissues which usually occurs in the elderly, (aged, 60 to 70 years), while patients younger than 30 or 40 years account for only 0.3 and 2.2 %,of all myelomas, respectively.

Materials and Methods: The present study analyzed 7 patients younger than 40 years among 87 patients of MM who presented to our hospital from 2005 to 2008. Complete diagnostic workup was carried out for all the patients.

Results: The youngest of the 7 patients included in the study was a 30 year old female. All the patients had marrow involvement by neoplastic plasma cells.

Conclusion: The survival of patients younger than 40years with MM is longer than observed in other series of patients of all ages with MM.

Key Words: Multiple myeloma, Young adults, Survival

INTRODUCTION

Multiple myeloma (MM) is a malignant disorder of the plasma cells that accounts for about 1% of all the malignant disorders [1]. MM is a disease of the elderly, with a peak age incidence between 60-70 years. The occurrence of MM in patients who are younger than 40 years is rare, the frequency being only 2.2% [1], [2]. Adolescents and very young adults may have a atypical clinical presentation and an indolent course with prolonged survival [3]. In this study, we have analyzed the characteristics of 7 patients who were younger than 40 years, with MM, from a single institution. The purpose of this study was to describe the presenting clinical and laboratory features and to analyze the response to therapy and survival in patients with MM, who were younger than 40 years.

MATERIALS AND METHODS

We analyzed 7 patients of MM who were younger than 40 years among 87 patients of multiple myeloma, who presented to our hospital from 2005 to 2008. A complete diagnostic workup was carried out for all the patients. The diagnosis of MM was based on the Salmon and Durie criteria [4].

RESULTS

Seven patients who were younger than 40 years were reviewed from 87 cases of multiple myeloma, who were diagnosed at our hospital from 2005 to 2008. The youngest of these was a 30 year old female. The clinical and laboratory data of our 7 patients is given in [Table/Fig-1] and [Table/Fig-2]. All the patients had marrow involvement by neoplastic plasma cells. The major criteria (>30%) was fulfilled in 5 patients and the minor criteria (10-30%) in 2 patients. All the patients showed the 'M' band in the serum electrophoresis, except for case 2. However, none of the patients showed Bence Jones proteins in the urine. Five of the 7 patients presented with a history of backache, one patient with generalized weakness and one with bony tenderness over the anterior chest wall. Two of the 7 patients had impaired renal function (creatinine ≥ 2 mg/dl) and 5 had a haemoglobin level which was less than 11gm% at diagnosis. All patients had radiological involvement in the form of lytic lesions in the bone, except for case 4, which showed only osteoporotic changes, whereas case 5 showed the presence of pathological fractures along with the lytic lesions. Five patients had stage II (A, 4 patients: B, one patient) and the remainder had stage III (both A) disease. Three out of 7 patients developed extramedullary plasmacytoma during the course of the disease.

All, but 2 of the 7 patients were treated with a combination chemotherapy regimen of VAD (Vincristine, Adriamycin and High dose Dexamethasone). Two patients were lost to follow up before the initiation of therapy. At the time of the analysis, two of the seven

S. No.	Age/Sex	Presenting Complaint	Extramedullary involvement	Chemotherapy regimen	Total follow up (Months)	Survival
1.	30/F	Generalised weakness	Soft tissue mass, Forehead	VAD	44	Expired
2.	32/F	Backache	–	VAD	–	Lost
3.	32/F	Bone tenderness	–	–	4	Expired
4.	34/F	Backache	Soft tissue mass, Right Breast	VAD	38	Alive
5.	40/M	Backache	–	VAD	29	Alive
6.	40/F	Backache	–	–	–	Lost
7.	37/M	Scalp swelling	Soft tissue mass, Scalp	VAD	25	Alive

[Table/Fig-1]: Clinical Profile of patients of MM < 40 years

S. no.	Age/ Sex	Hb gm%	Cr mg/ dl	Ca mg/ dl	BM plasma cells(%)	Serum M protein	BJP in urine	Bone lesions
1.	30/F	7.8	2.9	10.7	93	+	–	Lytic skull
2.	32/F	10.7	1.2	7.1	41	–	–	Lytic L4, L5 vertebrae
3.	32/F	9.6	1.2	11.5	37	+	–	Lytic clavicle
4.	34/F	8.5	0.5	8.5	46	+	–	Lytic T11 vertebra
5.	40/M	11.7	1.1	8.5	26	+	–	Lytic skull
6.	40/F	8.6	2.8	10.1	30	+	–	Lytic skull
7.	37/M	11.4	1.3	9.8	29	+	–	Lytic skull

[Table/Fig-2]: Laboratory findings of patients of MM < 40 years

patients (Cases 1 and 2) had died, 3 were alive with a median survival of 38 months and the remaining 2 patients were lost to follow up.

DISCUSSION

MM is a malignant disorder which is characterized by the proliferation of monoclonal plasma cells.[1],[3] The peak incidence of MM is in the seventh decade, whereas, it is a rare entity in young patients, with less than 2% cases occurring in patients under the age of 40 years and it is still rarer in patients who are younger than 30 years [1], [5]. A study of 3815 cases of MM by the National Cancer Institute showed that the frequency of such an occurrence was 7/3815 ie; 0.18%.6 Whereas, Hewell et al in their study, have reported the frequency to be 1%.7 In our study, the frequency of MM in patients who were younger than 40 years was found to be 8%. The increased frequency might be due to a smaller sample size as compared to that of other studies.

In various studies which were done in the past, the presenting clinical and laboratory features such as bone pain, weakness and fatigue and infection were similar to those which were observed in older patients [6]. Renal function impairment is a well known complication of MM. A Mayo clinic analysis revealed renal function impairment and hypercalcaemia in 30% and 20% of the patients, respectively [3]. In our subjects however, there was no evidence of hypercalcaemia, but 2 out of 7 patients (14%) showed renal impairment.

Various studies which were done in the past, suggested the association of the extramedullary component in most of these patients. Blade et al and Geetha et al in their respective studies, described the increased association of extramedullary plasmacytoma with bone marrow plasmacytosis in patients of MM who were younger than 40 years [2],[6]. In our study, 3 out of 7 cases developed extramedullary plasmacytomas during the course of the disease.

The treatment for young patients with multiple myeloma was similar to that which was used for the elderly patients. The literature shows that both radiotherapy and chemotherapy have been used for the management of such patients [1].

The median duration of survival of the patients with MM in all the age groups usually ranges between 2-3 years.3 Blade et al, in their study on 72 patients, found that the median survival was 54 months in younger patients with MM, which was clearly longer than that which was usually seen in patients with MM [6-8]. In our study, out of the 4 patients for whom the follow up was available, 2 were found to be alive and responding well to combination chemotherapy at the time of analysis. The median survival was found to be 38 months in the present study. Thus, the occurrence of myeloma in younger individuals does not appear to impart a worse prognosis or survival.

CONCLUSION

The presenting clinical and laboratory features and the response to therapy by patients who were younger than 40 years with MM, are similar to those which are observed in other myeloma series. However, the survival of such patients is longer than that which is observed in other series of patients of all ages with MM. Therefore, we can presume that age does have some beneficial effect on the natural history and the course of the disease.

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DECLARATION ON COMPETING INTERESTS:

No competing Interests.

Date of Submission: **Jan 09, 2011**
Date of Peer Review: **Apr 14, 2011**
Date of Acceptance: **Apr 15, 2011**
Date of Publishing: **Jun 13, 2011**