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Clinical Outcomes of Patients with Plasma Cell Neoplasm in Sulaymaniyah Province of Iraq

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ABSTRACT

Background: Multiple myeloma is usually a non-curable elderly disease with diverse presentations involving different fields of medicine. Patients could present with hematological, nephrological, neurological, orthopedic, metabolic or any other general medical problem.
Purpose: In this study we are trying to evaluate the extent, incidence, prevalence and pattern of presentation of this chronic disease in Sulaymaniyah province of Iraq.
Methods: A retrospective study was conducted to evaluate patients with plasma cells neoplasm managed at the Hiwa hematology/oncology teaching hospital, from December 2007 to September 2014.
Results: The median age at presentation was 59.6 years (SD ±16.9) , with a male to female ratio of 1.5:1. Bone pain was the most common presenting complaint (67%) , followed by fatigue and pathological bone fractures respectively. Ig G was the most common paraprotein.
Conclusions: Plasma cell neoplasm presenting age in our region is close to other parts of Iraq and neighboring countries but younger than western countries with male predominant.

Keywords: Plasma Cell Neoplasm**,** Multiple Myeloma , Sulaymaniyah , Iraq.

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INTRODUCTION

The plasma cell neoplasm and related disorders, sometimes referred to as immunosecretory disorders, are clonal proliferation of immunoglobulin-producing plasma cells or lymphocytes that make and secrete a single class of immunoglobulin or a polypeptide subunit of a single immunoglobulin that is usually detectable as a monoclonal protein (M protein) on serum or urine protein electrophoresis.Most plasma cell neoplasm originate as bone marrow tumors, but they occasionally present in extramedullary sites.[1]

World Health Organization has classified plasma cell neoplasm into: Monoclonal gammopathy of undetermined significance (MGUS), Plasma cell myeloma, Plasmacytoma, Immunoglobulin deposition diseases and Osteosclerotic myeloma (POEMS syndrome).[1] Multiple Myeloma (MM) is a neoplastic plasma cell dyscrasia (PCD) characterized by a clinical pentad of anemia, monoclonal protein in the serum or urine or both, bone lesions and/or bone pain, hypercalcemia and renal insufficiency.[2]

Incidence of MM varies greatly, geographically the frequency is very unevenly distributed in the world with the highest incidence in the industrialized regions of Australia, New Zealand, Europe and North America. Incidence and mortality seem to be stable in Asian countries and to increase slowly over the decades among whites in the western countries.[3]While MM remains a largely incurable disease, studies have shown that survival for myeloma patients has improved substantially over last few decades. Improvement in survival occurred in the late1900s due to the wider use of stem cell transplantation, and continued in the 2000s with the introduction of novel anti-myeloma agents such as thalidomide, lenalidomide , pomalidomide , bortezomib and carfilzomib .These are very much likely to further extend overall survival (OS) with fewer toxic effects.[4 - 8]

MATERIALS AND METHODS

A retrospective study was conducted to evaluate all the patients with plasma cells neoplasm managed in Hiwa teaching hospital from December 2007 to September 2014. Hiwa teaching hospital is a tertiary care hematology oncology hospital in the Sulaymaniyah governorate of Iraqi Kurdistan. The hospital was established in 2007 and cares for all patients in an area with a catchment population of nearly two million. Out of 116 patients in the hospital registry with the proven diagnosis of plasma cell neoplasm (multiple myeloma, Waldenstrom macroglobulinemia, solitary osseous plasmacytoma, extraosseous plasmacytoma and monoclonal gammopathy of undetermined significance) a hundred cases were eligible for the purpose of this epidemiological study. All patients had full blood and biochemistry profile especially complete blood count, renal functions tests, serum and urine electrophoresis results, serum calcium, skeletal survey & marrow aspirate with biopsy. Data also provide information about sex, age, occupational history and treatment plan.

Patients with non-conclusive results were excluded from this study. Selected topic was accepted by scientific committee; official acceptance was taken from health authorities to conduct this study. Collected information was kept confidential. The statistical package for social sciences (SPSS) for windows, version 24 was used for entering, managing and analysis of data, findings presented in tables and figures using MS-office software version 2013.

RESULTS

Patients characteristics

There were 100 patients with plasma cell neoplasm enrolled in our study, median age at presentation was 59.6 years (SD ±16.9) , age range was (33-87) years. Only 4 patients (4%) were younger than 40 years. Of these 100

patients, 60 patients (60%) were male ,40 patients (40%) were female, male to female ratio was 1.5:1. Kurds were the major ethnic group 87 patients (87%) followed by Arabs 11 patients (11%) and Turkmen 2 patients (2%).

Presenting complaint

Backache was the commonest presenting complaint which was reported in 55 patients (55%), followed by fatigue 20 patients (20%), bone pain 12 patients (12%) and pathological fractures 6 patients (6%) as shown in (Table 1).

Table 1. Percentage of presenting complaint in the study patients.

Presenting Complaint	No. (percentage)
Backache	55 (55%)
Bone pain	12 (12%)
Pathological fracture	6 (6%)
Fatigue	20 (20%)
Bone mass	3 (3%)
Lower limb paresthesia	2 (2%)
Inguinal mass	1 (1%)
Abdominal pain	1 (1%)
Total	100 (100)

Radiological and laboratory assessment

Anemia was present in 82 patients (82%), osteolytic lesions were seen in 71 patients (71%), renal impairment presented in 16 patients (16%) andhypercalcemia in 8 patients (8%) (Figure 1) .

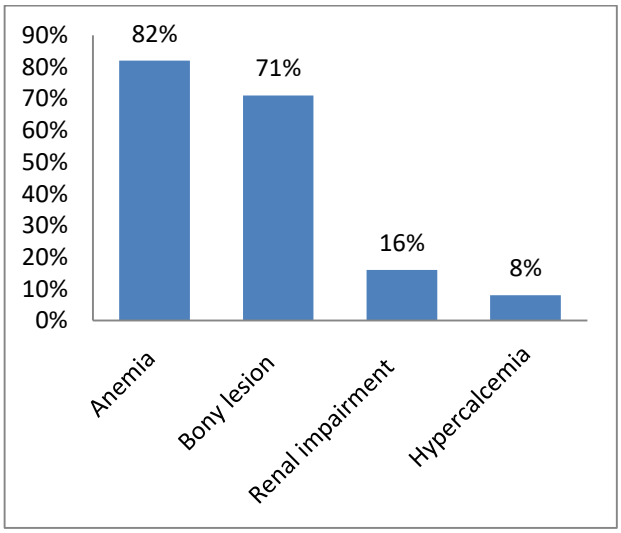

Figure 1. Radiological and laboratory assessment results

Serum and urine protein electrophoresis

Serum protein electrophoresis was available in 69 patients. The median M-protein in serum was 3.2 g/dl. The most common type of paraprotein was of IgG type, seen in 38 patients; next to it was IgA paraprotein 11 patients. IgM was present in 4 patients, all of whom were Waldenstrom macroglobulinemia. Immunofixation of the serum was available in all of the 69 patients concomitantly with the serum protein electrophoresis; 39 patients had Kappa chain; 21 patients had Lambda chain paraprotein. Serum protein electrophoresis with immunofixation was unremarkable in 9 patients. Three patients had non secretary myeloma; they did not show monoclonal paraprotein in their serum or urine on immunofixation at diagnosis of myeloma. Light-chain myeloma was present in 7 patients (Figure 2).

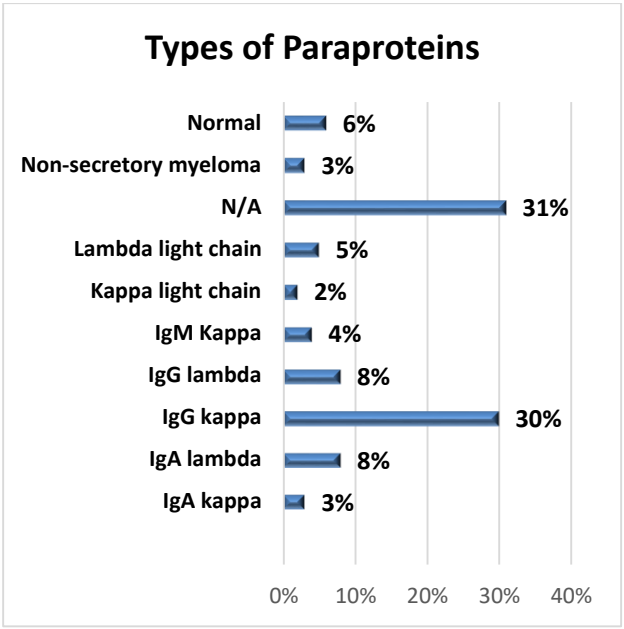

Figure2.Types of serum paraproteinemia

Types of plasma cell dyscrasia

Eighty five patients (85%) fulfilled diagnostic criteria for multiple myeloma, 4 patients (4%) had solitary plasmacytoma, 4 patients (4%) had Waldenstrom macroglobulinemia , 3 patients (3%) had nonsecretory myeloma; 2 patients (2%) had MGUS , 1 patient (1%) had solitary extraosseous plasmacytoma and 1 patient (1%) had smoldering multiple myeloma (Figure 3) .

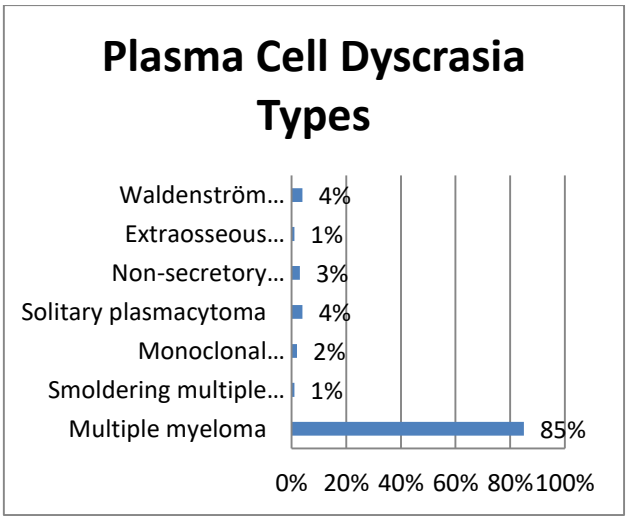

Figure 3. Types of plasma cell dyscrasia in the study patients.

DISCUSSION

Multiple myeloma accounts for approximately 1% of all cancers.[9] In 2010, almost 20,180 new cases were diagnosed and 10,650 deaths occurred due to the disease.[10] As a whole, the incidence of MM increases with age, with an average age at diagnosis being 65 years.[11] Only 10% and 2% of patients are younger than 50 years and 40 years respectively.[12,13]

In our study, the mean age at presentation was 59.6 years (SD ±16.9); this was comparable to the mean age at presentation of the Erbil study, which was 57.8 years (SD ±12.4).[14] While the median age of American patients were 6 years older than patients of the current study.[12]

Myeloma is well-known for its male dominance and that was well documented in our series with a male to female ratio of 1.5:1. This was also comparable to previous studies in Busrah, Turkey, China and USA .[12,15-17]

The most common presenting complaint in the present study was bone pain which was present in 67% of patients; this same with Erbil, Turkey and USA.[12,14,16] Of the available results on 69 patients, IgG was the most common monoclonal protein same results in other parts of Iraq, Turkey, China and USA.[12, 14-17]

CONCLUSION

Multiple myeloma presented in younger age in our population with male predominance. Bone pain was the most common presenting symptom and IgG was the most frequent paraprotein. More studies are needed to understand the plasma cells disorders patterns and dissemination in Iraq to recognize biology, genetics & possible risk factors in Iraqi patients.

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