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Initial Presentation and Early Outcomes of Multiple Myeloma Patients in A Real-World Setting

S. Douma[1]*, S. Naim[1], A. Benmoussa[1], M. Lamchahab[1], S. Cherkaoui[1], M. Qachouh[1], M. Rachid[1], A. Madani[1]

[1]Department of Hematology, 20 august Hospital, University Hassan II Casablanca Morocco

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***Corresponding author:** S. Douma
Department of Hematology, 20 August Hospital, University Hassan II Casablanca Morocco

Abstract **Original Research Article**

Background: Multiple myeloma (MM) is a heterogeneous plasma cell malignancy characterized by variable clinical presentation, biological behavior, and therapeutic outcomes. Despite significant therapeutic advances, prognosis remains highly variable, particularly according to patient characteristics and disease burden at diagnosis. Real-world data evaluating baseline characteristics, treatment patterns, and early outcomes remain limited in single-center settings. ***Methods:*** We conducted a retrospective descriptive study in the Clinical Hematology Department of the 20 August 1953 Hospital, Ibn Rochd University Hospital Center, including all patients diagnosed and followed for MM between January and December 2023. Clinical, biological, and therapeutic data were collected from medical records. Baseline patient characteristics, treatment regimens, response rates, early mortality, and follow-up status were analyzed. ***Results:*** A total of 64 patients were included. The median age was 62 years (range: 43–84), and 14% were aged ≥75 years. Male patients represented 65.6% of the cohort. At diagnosis, ECOG performance status was 0–1 in 50% of patients and ≥2 in 44%. Bone pain was the most common presenting symptom, observed in 90% of cases. End-stage renal disease was present in 15% of patients at diagnosis. According to the International Staging System (ISS), 44% of patients had stage III disease. Regarding treatment, standard first-line regimens were predominantly used. Fifteen patients received VTD (bortezomib, thalidomide, dexamethasone), 21% received VCD (bortezomib, cyclophosphamide, dexamethasone), and 10 patients were treated with VRD (bortezomib, lenalidomide, dexamethasone). Treatment response was evaluable in 53 patients. Complete response was achieved in 28.3%, very good partial response in 50.9%, and partial response in 9.4% of patients, resulting in an overall response rate of 88.7%. Treatment failure occurred in 11.3% of cases. Early mortality was observed in 3.2% of patients, while 11.3% were lost to follow-up. ***Conclusion:*** This real-world single-center study highlights the heterogeneous presentation of MM and demonstrates favorable early response rates with standard first-line therapies despite advanced disease burden in a significant proportion of patients.

Keywords: Multiple myeloma; Real-world study; Treatment response; Bortezomib-based therapy.

INTRODUCTION

Multiple myeloma (MM) is a clonal plasma cell disorder characterized by heterogeneous clinical presentation, variable biological behavior, and diverse therapeutic outcomes. Despite major advances in treatment over the past two decades, including the introduction of proteasome inhibitors, immunomodulatory agents, and monoclonal antibodies, MM remains an incurable disease in most patients, with significant variability in prognosis.

The clinical presentation of MM is highly heterogeneous, ranging from asymptomatic cases to severe manifestations such as bone pain, anemia, renal dysfunction, infections, and hypercalcemia. These features reflect the extent of bone marrow infiltration and end-organ damage at diagnosis, commonly summarized by the CRAB criteria. In addition, the disease is biologically diverse, with different immunoglobulin subtypes and cytogenetic profiles contributing to variability in clinical course and treatment response.

Patient characteristics, particularly age, remain important determinants of treatment strategy and outcomes. Older patients are more likely to present with comorbidities and treatment-related vulnerabilities, which may influence both therapeutic decisions and tolerance to therapy. Moreover, differences in disease presentation and complication rates across age groups may further impact prognosis.

In routine clinical practice, treatment initiation and response assessment provide essential information for evaluating early disease outcomes. However, real-world data describing the relationship between baseline clinical characteristics, treatment modalities, early response, and complications remain limited, particularly in single-center settings.

Therefore, this study aims to describe the clinical characteristics, treatment patterns, early response rates, and complications in patients with MM over a one-year period in a real-world setting, and to explore the associations between baseline features, including age and disease presentation, and early outcomes.

METHODS

This retrospective study was conducted in the Clinical Hematology Department of the 20 August 1953 Hospital, Ibn Rochd University Hospital Center. The study covered a one-year period from January 2023 to December 2023.

All patients followed for multiple myeloma with a confirmed diagnosis during the study period were included. Data were collected from patients' medical records. Relevant clinical and biological information was retrieved from hospital files.

RESULTS

A total of 64 patients were included; baseline demographics and disease characteristics are presented in Table 1. The median age was 62 years (range:43 –84). The proportion of patients aged ≥75 years was 14 %. The ECOG-PS at baseline was 0–1 in 50 %, ≥2 in 44 % and unknown in 6 % of patients.

The circumstances of discovery were dominated by bone pain in 90% of cases. Six patients (15%) were diagnosed at the stage of End-stage renal disease. 44% of our patients had an ISS score of 3.

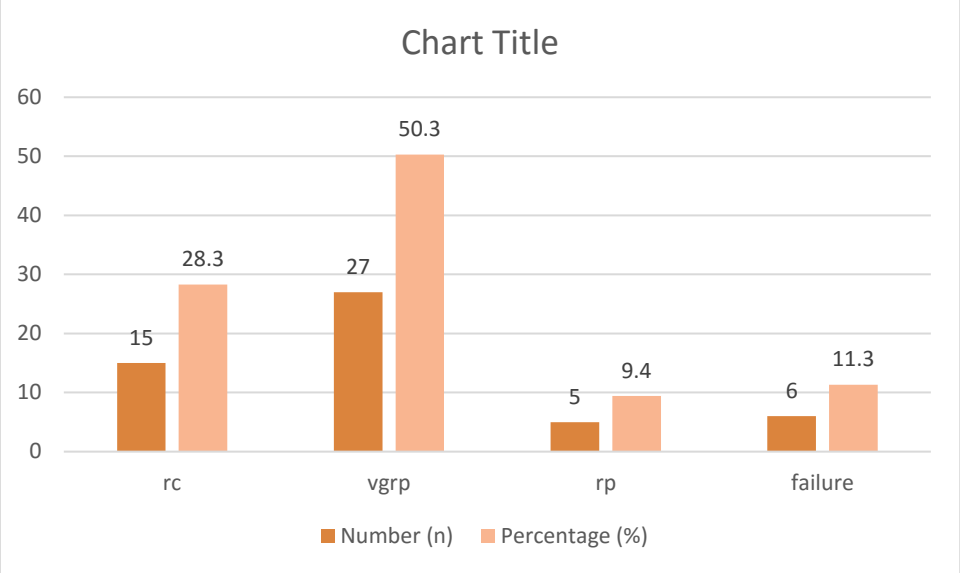
A majority of patients were treated according to standard first-line regimens for multiple myeloma. Fifteen patients received the VTD protocol (bortezomib, thalidomide, dexamethasone), 21% of patients were treated with VCD (bortezomib, cyclophosphamide, dexamethasone), and 10 patients received VRD (bortezomib, lenalidomide, dexamethasone)

Table 1 : Patient and disease characteristics

Characteristics	**N**
Median age, y (range)	62 years (range:43 –84)
Age group, n (%)	
<65 y	39
65 To <75 y	16
≥75 y	09
Sex, n (%)	
Male	42
Female	22
ECOG PS, n (%)	
0	19
1	12
2	13
3	18
ISS stage, n (%)	
I	10
II	19
III	28
Missing	7

Response to treatment

Response to treatment was evaluable in 53 patients. Complete response (CR) was achieved in 15 patients (28.3%), very good partial response (VGPR) in 27 patients (50.9%), and partial response (PR) in 5 patients (9.4%). The overall response rate (ORR) was 88.7%. Six patients (11.3%) experienced treatment failure.



Early mortality and follow-up

Early mortality was observed in 2 patients (3.2%). Seven patients (11.3%) were lost to follow-up during the study period.

DISCUSSION

This prospective single-center study conducted at the Hematology Department of CHU Ibn Rochd (Casablanca) provides real-world evidence on the clinical presentation, therapeutic management, and early outcomes of 62 patients with newly diagnosed multiple myeloma. The findings reflect routine clinical practice in a resource-limited setting and allow comparison with contemporary international data.

Patient characteristics and clinical presentation

The median age at diagnosis was 63 years, consistent with the established epidemiology of multiple myeloma as a disease primarily affecting older adults (Rajkumar, 2022). The slight female predominance observed in our cohort contrasts with most large international series, which typically report a modest male predominance (Palumbo & Anderson, 2011), and may reflect demographic variability or sample size constraints.

The median diagnostic delay of six months underscores persistent challenges in early disease recognition in low- and middle-income settings. This delay is clinically relevant, as it likely contributes to the high proportion of advanced-stage disease at presentation, with 44% of patients classified as ISS stage III (Greipp *et al.,*2005; Rajkumar *et al.,*2015). Compared with high-income countries, where earlier diagnosis is more frequent, our data suggest ongoing gaps in timely referral pathways.

Bone pain, observed in approximately 90% of patients, remained the predominant presenting symptom, in line with the classical clinical phenotype of myeloma-related skeletal disease (Palumbo & Anderson, 2011).

Renal involvement and disease burden

Renal impairment was present in 15% of patients at diagnosis, including cases of end-stage renal disease. Myeloma-related kidney injury is a well-recognized marker of tumor burden and delayed diagnosis and is associated with inferior outcomes (Dimopoulos *et al.,*2010). The observed frequency is comparable to other real-world cohorts in similar healthcare settings.

Treatment patterns

All patients received bortezomib-based induction therapy, consistent with current international recommendations (Rajkumar, 2022). The use of VTD, VCD, and VRD regimens reflects adherence to evidence-based standards, as these combinations have demonstrated superior efficacy in newly diagnosed transplant-eligible and ineligible patients (San Miguel *et al.,*2008; Cavo *et al.,*2010; Durie *et al.,*2017).

However, a major limitation of the therapeutic landscape in our setting is the absence of anti-CD38 monoclonal antibodies (e.g., daratumumab) in first-line treatment strategies. These agents have become a cornerstone of modern myeloma therapy, significantly improving depth of response, minimal residual disease (MRD) negativity rates, and progression-free survival in multiple randomized trials (Moreau *et al.,*2017; Rajkumar, 2022). Their unavailability in our context is primarily related to cost and access limitations, which may restrict further improvement in long-term outcomes.

Treatment response

The overall response rate of 88.7% observed in this cohort is consistent with outcomes reported in clinical trials and real-world studies evaluating bortezomib-based regimens (Cavo *et al.,*2010; Durie *et*

*al.,*2017). Notably, nearly 80% of responders achieved at least a very good partial response, indicating a substantial depth of response despite resource constraints.

Nevertheless, treatment failure in 11.3% of patients highlights the biological heterogeneity of multiple myeloma and the likely presence of high-risk disease features not fully captured in this cohort.

Early mortality and follow-up

Early mortality was 3.2%, reflecting the vulnerability of newly diagnosed patients, particularly those presenting with advanced disease, renal failure, or infectious complications (Dimopoulos *et al.,*2010). Early deaths remain a critical quality-of-care indicator and emphasize the need for rapid diagnostic and therapeutic intervention.

The 11.3% loss to follow-up represents a significant limitation and reflects structural barriers to continuity of care, including socioeconomic constraints and geographic accessibility issues, which are commonly reported in similar healthcare systems.

Study limitations

This study has several limitations. The relatively small sample size limits statistical power and subgroup analyses. The short follow-up period precludes assessment of long-term endpoints, including progression-free survival and overall survival. Furthermore, the absence of systematic cytogenetic and molecular profiling limits refined risk stratification (Rajkumar, 2022; Sonneveld *et al.,*2017).

Importantly, the lack of access to novel immunotherapies, particularly anti-CD38 monoclonal antibodies, represents a major therapeutic gap compared with contemporary international standards. These agents are now widely incorporated into first-line regimens and have d+emonstrated significant survival benefits in multiple phase III trials (Moreau *et al.,*2017).

CONCLUSION

Despite these limitations, our findings confirm that bortezomib-based regimens remain highly effective in real-world practice, achieving response rates comparable to those observed in pivotal clinical trials (San Miguel *et al.,*2008; Cavo *et al.,*2010). However, substantial improvements in early diagnosis, access to novel immunotherapies, and continuity of care are required to further optimize outcomes in our setting.

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