Real-World Demographics and Clinical Characteristics of Multiple Myeloma patients in a Colombian HMO During 2015-2023

EPH56

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BACKGROUND

- Myeloma multiple (MM) is a malignancy of plasma cells characterized by a monoclonal proliferation of plasma cells resulting in the production of monoclonal antibody and end-organ damage[1].
- This can damage bone marrow, resulting in cytopenia and frail, brittle bones, or renal failure[2].
- Multiple myeloma is a neoplasm of older adults with the median age at diagnosis being 69 in the US. The frequency of MM is 1.5 time more common among men than women[3].

OBJECTIVE

- To measure the demographic and clinical characteristics in MM patients from a Colombian Health Maintenance Organization between 2015-2023.

METHODS

- A retrospective, descriptive and cohort-study of patients with MM between 2015 and 2023 was conducted in the Colombian population under clinical practice affiliated with an HMO with nationwide coverage for more than 5 million members in Colombia.
- Patients with an ICD-10th code C90.0 were included and their administrative health records were extracted. The index date was defined as the time when the patient is diagnosed MM and they were followed until death, insurance discontinuation (patient loss), or the end of the observation period (31 December 2023), whichever occurred first.
- The inclusion criteria were: 1) confirmed diagnosis of MM, 2) ≥18 years, 3) ≥1 claim or administration of treatment for MM, 4) treated by the HMO between January 2015 and December 2023, and 5) medical records are available ≥1 year before and after the index date.
- The clinical and demographic characteristics such as age, comorbidities, cytogenetic risk, extramedullary disease among others were abstracted from the medical records or laboratory reports. Treatments were collected from the medical records and claim databases.
- Descriptive statistics were produced for all variables. Quantitative variables were expressed as mean and standard deviation if they had a normal distribution and as the median and interquartile range (IQR) if they did not have a normal distribution. Categorical variables were expressed as absolute values and percentages.
- Clinical and demographic characteristics were compared Stage of International Stage System (ISS), autologous transplant (AT) vs non-AT patients, and MM patients with triple-class refractory disease. T-test and chi square test were used to compare the different groups.

RESULTS

- The study included 700 patients (median age: 64, IQR 16, Q1-Q3: 55-71). In the cohort 52.4% were female and 66.6% were of mestizoes ethnicity (Table 1).
- Common comorbidities included arterial hypertension (50.5%), chronic kidney disease (22.7%), and diabetes mellitus (15.7%). The average Charlson Comorbidity Index (CCI) score was 3.7 (standard deviation [SD] = 2.8) (Table 1).
- 49.3% were in Stage III based on the ISS and 35.4% were in Stage IIIA based on the Durie-Salmon Staging System (Table 2).
- The functional status at diagnosis was good for most patients, with 640 patients (91.5%) classified as ECOG 2 or lower, while only six patients (0.9%) were classified as ECOG 4. 82.6% experienced a skeletal-related event, with bone fractures and hypercalcemia being the more common (Table 2).
- The most frequent type of monoclonal component was IgG (n=550, 78.6%), with IgG Kappa being the most common subtype (n=366, 52.3%), followed by IgA. N= 5 patients presented with a monoclonal component of the IgM type.
- During the follow up, 41,7% of patients were treated with AT. Differences between AT and non-AT recipients were noted; AT recipients were younger (mean age 56.4 vs. 67.5; p 0.001), female (56.8% vs. 49.3%; p 0.06) and had fewer comorbidities such as hypertension (40.4% vs. 57.8%; p 0.001), diabetes (8.2% vs. 21.8%; p 0.001) and a lower mean CCI score (2.5 vs. 4.6; p 0.001).
- The FISH analysis for high-risk cytogenetic abnormalities was not performed in all cases. Of the 301 patients who underwent FISH testing, 5.6% were positive for t(4;14) And 1.7% for 17p
- Comparing laboratory values by ISS stage, there were differences in hemoglobin, creatinine, beta-2 microglobulin, immunoglobulin A, immunoglobulin M, and plasmacytes in bone marrow (Table 3).

RESULTS (cont)

- At diagnosis, 52.3% had IgG kappa subtype. The predominant karyotypes were 46xy (22.4%) and 46xx (18.1%).
- MM patients with triple-class refractory disease had a lower proportion of women, were younger, and had a higher proportion of ISS III stage compared with the overall total (Table 4).

Table 1. Demographic characteristics and comorbidities of included patients.

Caracteristics	(n=700, %)
Women n (%)	367 (52.4)
Age (mean (SD))	62.9 (11.3)
Raze n (%)	
African american	12 (1.7)
White	65 (9.3)
Indigenous	1 (0.1)
Mestizoes	466 (66.6)
Mulatto	1 (0.1)
Raizales	1 (0.1)
Zambaigo	1 (0.1)
Non information	153 (21.9)
Comorbidities n (%)	
Arterial hypertesion	354 (50.5)
Chronic kidney disease	159 (22.7)
Diabetes mellitus	110 (15.7)
Solid tumor	63 (9.0)
Moderate kidney disease	58 (8.3)
Chonic obstructive pulmonar diseases	53 (7.6)
Demence	48 (6.9)
Neoplasia	47 (6.7)
Heart failure	39 (5.6)
Cardiovascular disease	37 (5.3)
Myocardial infraction	27 (3.8)
Liver disease	20 (2.9)
Peripherical vascular disease	26 (3.7)
Peptic ulcer	25 (3.6)
Hemiplejia	21 (3.0)
Enfermedad de tejido conectivo	16 (1.9)
Transient cerebral ischemia	13 (1.9)
Leukemia	4 (0.6)
HIV	3 (0.4)

Table 2. Clinical characteristics of MM patients

Clinical characteristics	(n=700, %)
International Staging System (ISS) Stage n (%)	
I	98 (14.0)
II	257 (36.7)
III	345 (49.3)
Durie Salmon Stage n (%)	
IA	78 (11.1)
IB	7 (1.0)
IIA	193 (27.6)
IIB	63 (9.0)
IIIA	248 (35.4)
IIIB	111 (15.9)
ECOG n (%)	
0	74 (10.6)
1	356 (50.9)
2	210 (30.0)
3	54 (7.7)
4	6 (0.9)
Skeletal-related events n (%)	578 (82.6)
Bone fractures	342 (48.8)
Hypercalcemia	183 (26.2)
Spinal cord compression	135 (19.3)
Radiation therapy	82 (11.7)

RESULTS (cont)

Clinical characteristics	(n=700, %)
Dialysis at diagnosis	66 (9.4)
Plasmapheresis	13 (1.90)
Spinal cord decompression surgery	48 (6.9)
Other conditions n (%)	
Amyloidosis	38 (5.4)
Polyneuropathy	46 (6.6)
Prior MGUS	54 (7.7)

Table 3. Clinical characteristics of patients based on I, II, III stage ISS

Clinical characteristics	ISS I (n=98,%)	ISS II (n=257,%)	ISS III (n=345,%)	p
Hemoglobin (mg/dL) Median (IQR)	12.6 (11.2-14)	11.2 (9.20-12.7)	10.5 (8.80-12.5)	0.001
Leukocytes Median (IQR)	5890 (4450-7453)	5500 (3900-7200)	5630 (4240-7660)	0.167
Platelets: Median (IQR)	248000	232000	224000	0.346
Creatinine (mg/dL)	0.90 (0.73-1.14)	1.0 (0.73-1.32)	1.0 (0.78-1.84)	0.006
Calcium	9.30 (8.90-9.80)	9.10 (8.70-9.70)	9.25 (8.70-9.88)	
Albumin (mg/dL)	4.0 (3.60-4.40)	3.62 (3.10-4.09)	3.73 (3.10-4.20)	0.269
Beta-2 microglobulin (mg/L)	2.85 (2.14-4.55)	3.85 (2.50-5.11)	5.0 (2.92-8.21)	0.001
Lactate dehydrogenase (Ui/L)	223 (193)	204 (113)	208 (106)	0.480
Monoclonal band Median (IQR)	1.80 (1.15-6.87)	3.40 (1.48-6.87)	4,27 (1.69-7.16)	0.114
Immunoglobulin G Median (IQR)	10.6 (5.79-18.0)	8.60 (4.51-20.4)	8.19 (3.60-22.5)	0.322
Immunoglobulin A Median (IQR)	1.23 (0.59-2.37)	1.08 (0.50-3.11)	1.02 (0.39-3.11)	0.040
Immunoglobulin M Median (IQR)	0.35 (0.25-0.73)	0.33 (0.25-0.65)	0.34 (0.22-0.66)	0.048
Plasmacytes in bone marrow Median (IQR)	14.5 (5-39.5)	20 (8.60-42)	20 (6.35-41.5)	0.006
Kappa chains Median (IQR)	149 (19.8-342)	218 (26.0-707)	155 (20.4-592)	0.055
Lambda chains: Median (IQR)	63.1 (10.4-193)	43 (11.2-129)	47.8 (10.8-162)	0.535
Genetic alterations n (%)				
t4;14				
Present	0 (0.0)	7 (2.7)	10 (2.9)	
Absent	46 (46.9)	102 (39.7)	136 (39.4)	
No information	52 (53.1)	148 (57.6)	199 (57.7)	
t14;16				
resent	0 (0.0)	1 (0.4)	0 (0.0)	
Absent	46 (46.9)	108 (42.0)	146 (42,3)	
No information	52 (53.1)	148 (57.6)	199 (57.7)	
Delecion 17p				
Present	0 (0.0)	4 (1.6)	8 (2.3)	
Absent	46 (46.9)	105 (40.9)	138 (40.0)	
No information	52 (53.1)	148 (57.6)	199 (57.7)	
Karyotypes				
45xx	0 (0.0)	0 (0.0)	1 (0.3)	
45xy	1 (1.0)	0 (0.0)	0 (0.0)	
45xy/46xy	0 (0.0)	0 (0.0)	1 (0.3)	
46xx	20 (20.4)	41 (16.0)	66 (19.1)	
46xx/45xx	0 (0.0)	1 (0.4)	0 (0.0)	
46xx/47xxx	0 (0.0)	0 (0.0)	0 (0.0)	
46xxy	0 (0.0)	1 (0.4)	2 (0.6)	
46xy	21 (21.4)	64 (24.9)	72 (20.9)	
46xy/46xo	1 (1.0)	0 (0.0)	0 (0.0)	
47xx	0 (0.0)	1 (0.4)	0 (0.0)	
51xx	0 (0.0)	1 (0.4)	0 (0.0)	
54xy	0 (0.0)	0 (0.0)	2 (0.6)	
77xxx	1 (1.0)	0 (0.0)	0 (0.0)	
84-92xxx/46xx	0 (0.0)	1 (0.4)	0 (0.0)	

RESULTS (cont)

Clinical characteristics	ISS I (n=98,%)	ISS II (n=257,%)	ISS III (n=345,%)	p
Karyotypes				
96xx	1 (1.0)	0 (0.0)	0 (0.0)	
No information	52 (53.1)	148 (57.6)	199 (57.7)	

Table 4. Demographic and clinical characteristics of triple-class refractory multiple myeloma

Caracteristics	(n=127, %)
Women n (%)	59 (46.4)
Age (mean (SD))	58.9 (10.0)
Raze n (%)	
African american	1(0.7)
White	9 (7.0)
Mestizoes	99 (78.0)
Non information	18 (17.2)
International Staging System (ISS) Stage n (%)	
I	12 (9.4)
II	42 (33.1)
III	73 (57.5)
ECOG n (%)	
0	12 (9.4)
1	73 (57.5)
2	35 (27.6)
3	7 (5.5)
Skeletal-related events n (%)	105 (82.7)
Extramedullary disease n (%)	5 (3.9)
Charlson score n (%)	
2	27 (21.3)
3	27 (21.3)
4	14 (11.0)
5	10 (7.9)
>5	17 (13.4)
SCT during the baseline period, n (%)	88 (69.3)
Aspartate aminotransferase, mean (SD), microkat/l	32.8 (51.3)
Alanine aminotransferase, mean (SD), microkat/l	35.4 (81.4)
Hemoglobin, mean (SD), g/l	11.3 (2.2)
Creatinine clearance, mean (SD), ml/min	1.3 (1.0)
Calcium in serum or plasma, mean (SD), mmol/l	9.3 (1.0)
Serum albumin, mean (SD), g/dl	3.7 (0.6)

CONCLUSION

- Patients with MM were elderly mestizoes, with a skeletal-related event and moderate mortality risk according to CCI. A large proportion were in late-stage disease, and less than half reported AT. Those who underwent AT were younger, female with proportionally fewer comorbidities and lower mortality risk.

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