# IgM Myeloma: A Multicenter Retrospective Study of 159 Patients

**Jorge J. Castillo, MD**[1], Artur J. Jurczyszyn, MD, PhD[2*], Edvan Crusoe, MD, MsC[3*], Jacek Czepiel, MD[2*], Julio Davila, MD[4*], Angela Dispenzieri, MD[5], Marion Eveillard, PharmD, PhD[6*], Mark A Fiala, BS, CCRP[7*], Irene M. Ghobrial, M.D.[8], Alessandro Gozzetti, MD[9*], Joshua Gustine, MPH[1*], Roman Hájek, MD PhD[10], Vânia Hungria, MD[11], Jiri Jarkovsky, MSc, PhD[12*], David Jayabalan, BSMS, MSc[13*], Jacob P Laubach, MD[1], Barbara Lewicka, MD[2*], Vladimir Maisnar, MD, PhD[14*], Elisabeth E. Manasanch, MD[15], Philippe Moreau, MD[6*], Hareth Nahi, MD[16*], Ruben Niesvizky, MD[13], Claudia E. Paba-Prada, MD[1], Tomas Pika, MD, PhD[17*], Ludek Pour, MD, PhD[18*], John L Reagan, MD[19], Paul G Richardson, MD[1], Jatin J. Shah, MD[15], Ivan Spicka, MD PhD[20*], Ravi Vij, MD[7], Anna Waszczuk, MD, PhD[21*] and Morie A Gertz, MD; MACP[22]

## Introduction

IgM-secreting myeloma is rare, encompassing about 1% of all the myeloma cases.
Given its rarity, the characteristics and survival of these patients have not been extensively studied.
We carried out a multicenter retrospective study in patients with IgM myeloma.

## Methods

The study protocol was reviewed and approved by the Institutional Review Board of each participating institution.
Diagnosis was made based on the presence of >10% plasma cells in the bone marrow and the identification of an IgM monoclonal spike of any size.
Clinical data were gathered and included age, sex, hemoglobin, calcium, LDH, estimated glomerular filtration rate (GFR), presence of lytic bone lesions, International Scoring System score, cytogenetic abnormalities, final outcome and overall survival (OS) time.
OS was defined as the time in months from diagnosis to last follow-up or death.
The Chi-square and the rank-sum tests were used to compare categorical and continuous variables, respectively.
The Kaplan-Meier method was used to estimate OS.
The Cox proportional-hazard regression method was used to fit univariate survival models, reported as hazard ratio (HR) with 95% confidence intervals (CI).
All reported p-values are two-sided, and were considered significant if less than 0.05.

## Results

A total of 159 patients with IgM myeloma from 23 centers were included in this analysis.
95 patients (60%) were from the US, 62 patients (39%) from Europe and 2 patients (1%) from Latin America.

**Table 1. Patients' characteristics**

| Characteristic | Number or median | % or range |
|---|---|---|
| Age at MM diagnosis | 65 years | 37-86 years |
| Age >60 years | 121 | 76% |
| Male sex | 108 | 68% |
| Hemoglobin <10 g/dl | 49 | 32% |
| Est GFR <60 ml/min | 56 | 37% |
| Elevated calcium | 24 | 16% |
| Lytic lesions | 86 | 58% |
| Elevated LDH | 28 | 24% |
| Serum IgM level | 2510 mg/dl | 35-12100 mg/dl |
| Kappa | 92 | 60% |
| Lambda | 58 | 38% |
| IgM >3000 mg/dl | 64 | 46% |
| ISS stage 1 | 53 | 36% |
| ISS stage 2 | 63 | 43% |
| ISS stage 3 | 31 | 21% |
| Poor cytogenetics | 11 | 14% |
| t(11;14) | 26 | 39% |

## Results (II)

149 patients (94%) received at least one line of systemic therapy for myeloma.

**Table 2. Frontline treatment of IgM myeloma**

| Regimens | Number | % |
|---|---|---|
| IMID only-based regimen | 31 | 20% |
| PI only-based regimen | 39 | 25% |
| IMID + PI-based regimen | 22 | 14% |
| Chemotherapy-based regimen | 39 | 25% |
| Steroids only | 10 | 6% |
| Rituximab alone | 5 | 3% |
| ASCT | 22 | 28% |

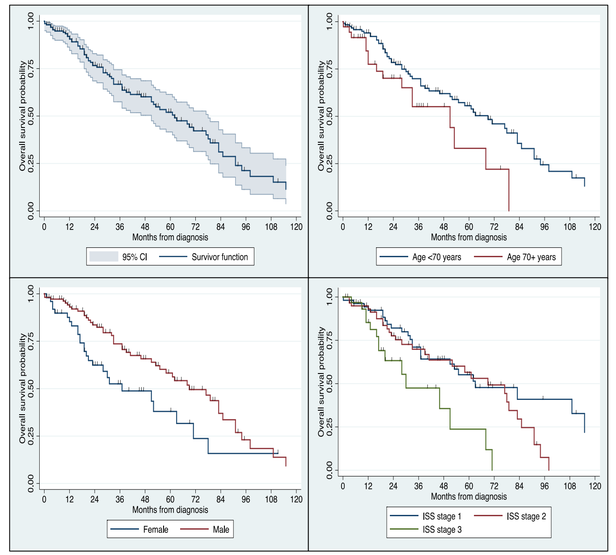
After a median follow-up of 47 months, 74 patients (47%) have died.
The median OS was 62 months (95% CI 51-79 months).
Cause of death was known in 38 patients, and the most common was myeloma progression (74%).

**Table 3. Univariate overall survival analysis**

| Variable | HR (95% CI) | P |
|---|---|---|
| Age >70 | 1.83 (1.03-3.25) | 0.04 |
| Male sex | 0.56 (0.34-0.90) | 0.02 |
| ISS stage 2 | 1.43 (0.83-2.48) | 0.20 |
| ISS stage 3 | 3.03 (1.54-5.98) | 0.001 |

## Results (III)

**Figure 1. Overall survival of IgM myeloma patients for the entire cohort (A), and according to age (B), sex (C) and ISS stage (D)**




## Conclusions

- Patients with IgM myeloma present with similar clinical characteristics than patients with non-IgM myeloma.
- Pathologically, CD20 expression is common.
- t(11;14) was the most common cytogenetic abnormality identified.
- Age, sex and the ISS stage have prognostic value in IgM myeloma.

**Disclosures: The authors have no conflicts of interest to disclose**

**For reprints, please contact jorgej_castillo@dfci.harvard.edu**