

# AKI AND SURVIVAL IN MULTIPLE MYELOMA

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## Introduction:

Multiple myeloma (MM) is a hematologic malignancy with frequent renal involvement. It often presents with acute kidney injury (AKI) that has been associated with a poor prognosis.

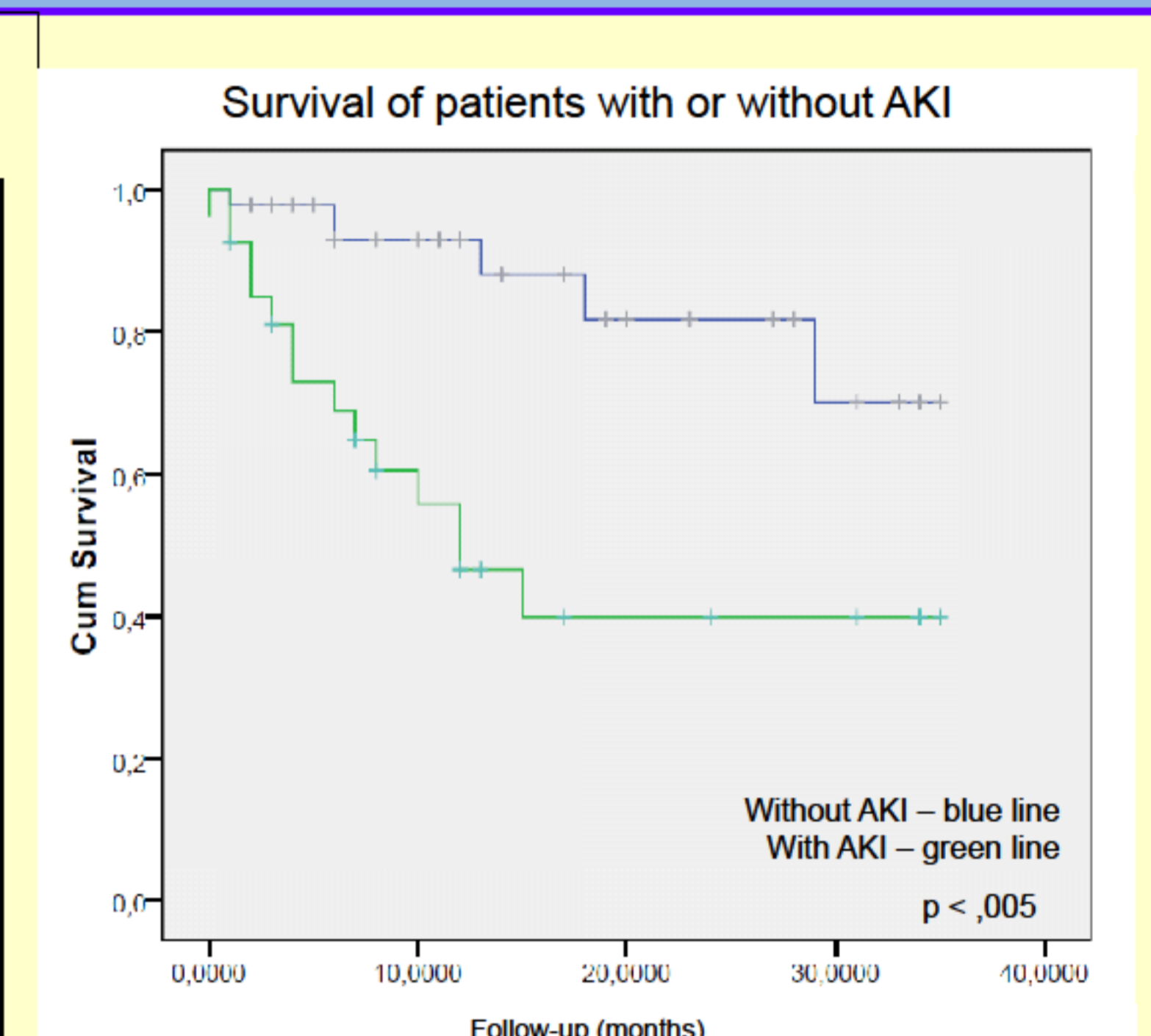
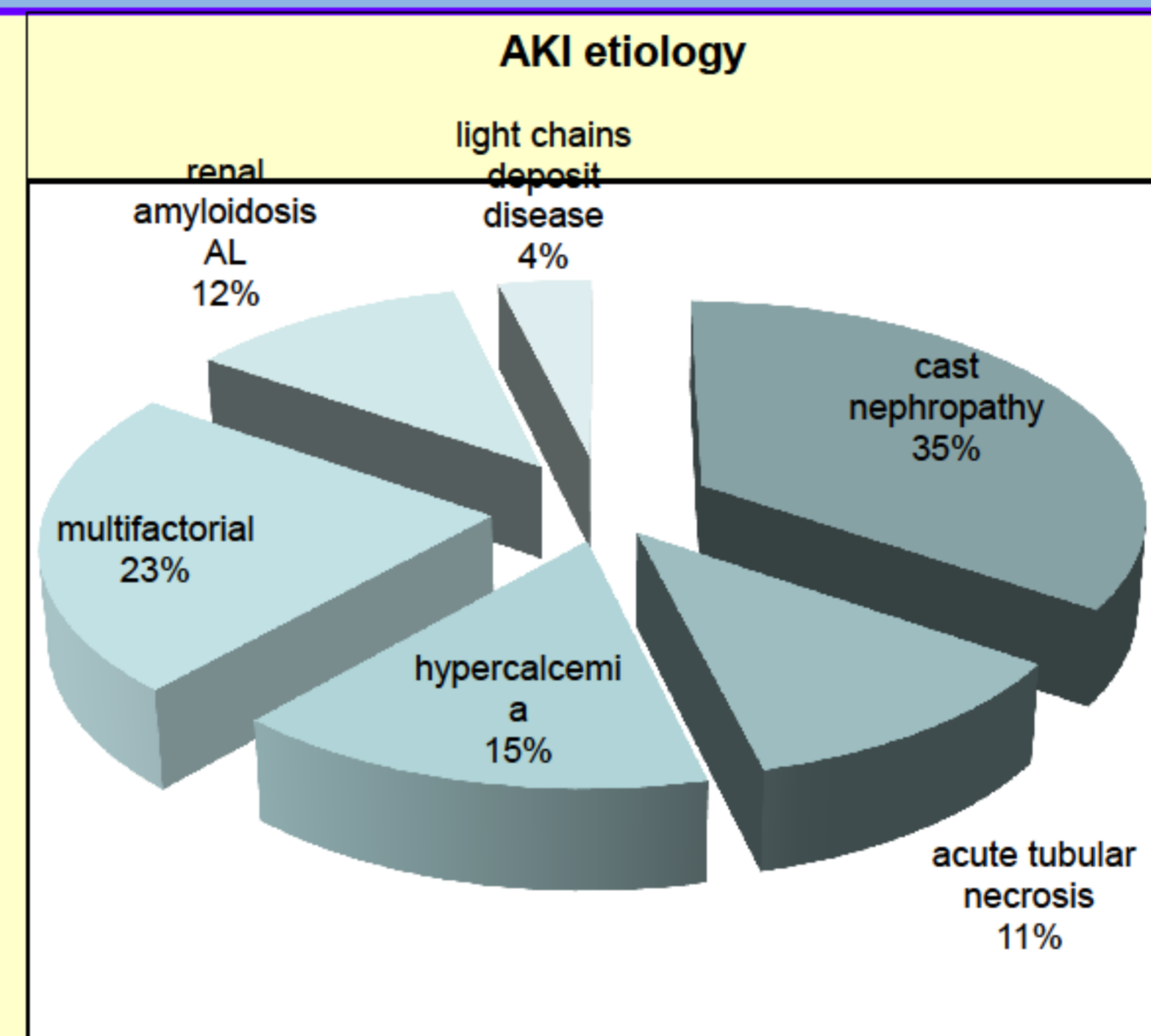
The aim of our study was **evaluate the impact of AKI on patient survival**, the **clinical features associated with AKI and the etiology of AKI** in patients at the moment of MM diagnosis. We also evaluate other clinical factors that could **predict mortality** when diagnosed.

## Methods:

- Retrospective study. **Patients diagnosed with MM between 2010 to 2013** in our center. Follow-up time: until the date of death or until 31/12/2013.
- 2 groups: group 1 - patients without, **group 2 patients with AKI.**
- AKI: plasma creatinine above 1.3 mg/dL.**
- Statistical analysis: T test and Chi-Square. Survival analysis: Kaplan-Meier method. We conducted a longitudinal multivariate Cox regression analysis, including: gender, age, type and stage of MM according to the International Staging System (stage I,II,III), the presence of osteolytic lesions and AKI at the time of diagnosis, percentage of plasma cells in the bone marrow (<10 vs ≥10%), haemoglobin (<9 vs ≥9 g/dL), albumin (< 3 vs ≥3 g/dL), serum calcium (<10 vs ≥10mg/dL) and B2-microglobulin (<3 vs ≥ 3mg/L).
- The significance level for the models was determined as p<0.05.

Baseline demographic	
Gender (M/F) (N)	31/42
Median age (Years)	70
Laboratory data	
B2-microglobulin (mg/L)	4.45
Calcium (mg/dl)	9.56
Haemoglobin (g/dl)	10.1
Albumin (g/dl)	3.87
Myeloma data	
Type of paraprotein (N)	
IgG	46
IgA	17
IgD	1
Light chain only	12
Stage (N)	
I	19
II	20
III	32

	AKI (n = 27)	Without AKI (n = 46)	p value
Albumin < 3.5g/dL	9	1	0.00
Haemoglobin < 9g/dL	14	7	0,01
Calcium ≥10mg/dL	42	27	0,10
Plasmocytoma	8	13	0.91
B2-microglobulin ≥3 mg/L	17	2	0,05
Light chain myeloma	8	4	0,02



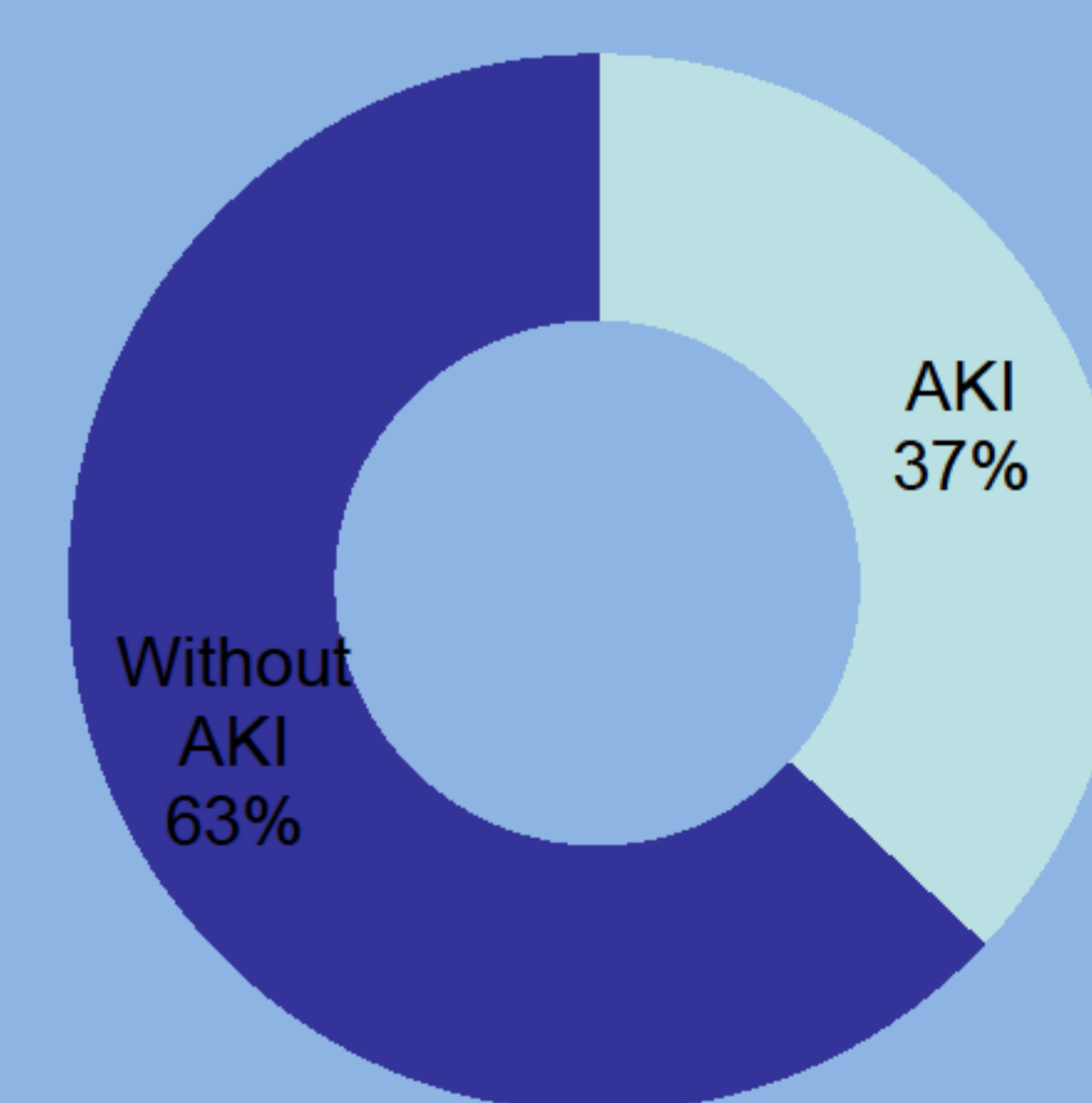
## Results:

The study involved 73 patients with MM, Baseline demographic, laboratory, myeloma data of the 73 patients are on table 1.

Twenty-seven patients had **AKI at the diagnosis of MM (36,5%)** and 9 patients required hemodialysis. The **main etiology was cast nephropathy** in 9 patients (33,3 %). Other causes were: **acute tubular necrosis due to hypotension and use of NSAIDs** in 3 patients (11,1%), **hypercalcemia** in 4 patients (14,8%), **renal amyloidosis AL** 3 patients (11,1%), **light chains deposit disease** in one patient (3,7%) and multifactorial causes in 6 patients (22,2% ). We have found that patients with **AKI had: stage II or III MM (p=0,001), lower serum albumin (p=0,001) and haemoglobin (p=0,01).** During the period of follow-up, 20 (27%) patients died.

We found a **significantly lower survival in the patients with AKI at presentation (p<0,05).** This impact on mortality **was not observed in the multivariate analysis (HR=1,52 CI:0,10-2,65, p=0,43).** In the multivariate analysis, two factors **were found to be significantly and independently associated with mortality: serum albumin < 3 g/dL (HR=8,22 CI: 2,07- 32.5; p=0.03) and light chain MM (HR 7.34; CI: 1.63-49.4; p=0.009).**

### Renal disease associated MM



## Conclusions:

- Renal involvement is a common complication of MM and these patients have poor survival.
- Light chain MM was associated with the worse prognosis.

## References:

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