PROGNOSTIC VALUE OF SERUM FREE LIGHT CHAINS IN PATIENTS WITH BENCE JONES MULTIPLE MYELOMA

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Background: Bence Jones Multiple Myeloma or Light Chain Multiple Myeloma (LCMM) is characterized by the production of only lights chains. It can be found approximately in 15% of MM patients and it is considered to have a worse prognosis than Intact Immunoglobulin Multiple Myeloma. The aim of this study is to evaluate the prognostic value of serum free light chains (sFLC) at presentation in newly diagnosed LCMM patients.

Methods: 43 patients with LCMM were included in this study during a period of five years. sFLC levels were measured by nephelometry (Freelite, The Binding Site, Birmingham, UK) and sFLC ratio was calculated as K/L. Clinical and laboratory variables including sFLC, albumin, beta-2-microglobulin (B2M), creatinine, hemoglobin, calcium, LDH, M-protein size, plasma cell infiltration, presence of plasmacytoma and presence of lytic bone lesions) were recorded and evaluated for their impact on the patient`s outcome. Statistical analysis was performed using SPSS 23. Overall survival (OS) was analysed by Kaplan-Meier method and curves compared by Log-Rank test.

Results: The median age of the patients included in the study was 69 years (range 59-75) and 51% were female. The median follow-up was 32 months (range 17-45 months) and during the period of study there were fourteen disease-related deaths. According to ISS; 28% patients had stage 1, 41% had stage 2 and 30% had stage 3. At diagnosis, the proportion of patients with renal impairment (creatinine2 mg/dL), anemia (Hb10 g/dL), hypercalcemia (Ca11 mg/dL) and presence of bone lesions were 28%, 35%, 12% and 70%, respectively. The median percentage of BM plasma cells was 18% and 19% of patients had plasmacytoma at diagnosis. Altered sFLC ratio at diagnosis defined by K/L ratio 0.26 or 1.65 was observed in all the patients. Median sFLC levels in patients with kappa light chain restriction (n=20) was 413 mg/L (range 128-1612 mg/L) and in those with lambda light chain restriction (n=23) was 985 mg/L (range 270-2858 mg/L). The median sFLC ratio for kappa secretors and lambda secretors were 43 and 0.01, respectively. The cohort of patients was separated in two groups based on sFLC ratio cut-off of 0.01 or 43. The 5-years OS was significantly inferior in patients with high sFLC ratios (0.01 or 43, 12% 5y-OS), compared with those with low sFLC ratios (between 0.01 and 43, 74% 5y-OS) with median survivals of 45 months and NR, respectively (p=0.017, HR=3.70, CI95% 1.15-11.87). Involved sFLC (iFLC) levels above the median values (kappa≥413 mg/L and lambda≥985 mg/L for kappa and lambda secretors, respectively) predicted a worse prognosis. The 5-years OS was 70% in patients with iFLC levels below the median and 0% in those with iFLC levels above the median, with median survivals of NR and 45 months, respectively (p=0.009, HR=4.33, CI95% 1.31-14.28). Other variables significantly associated with adverse outcome were B2M3.5 mg/L (p=0.006) and albumin3.5 g/dL (p=0.023). There was no significant correlation with the others variables.

Conclusions: sFLC ratio and involved FLC levels above median values at diagnosis are important risks factors of worse prognosis in patients with Bence Jones Multiple Myeloma.