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POSTER ABSTRACTS

654.MGUS, AMYLOIDOSIS AND OTHER NON-MYELOMA PLASMA CELL DYSCRASIAS: CLINICAL AND EPIDEMIOLOGICAL

A Comparative Study of Clinical Characteristics, Cytogenetic Abnormalities and Outcomes Among Multiple Myeloma, Primary Light-Chain Amyloidosis and Multiple Myeloma with Concurrent AL Amyloidosis

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Introduction: Multiple myeloma (MM) and light-chain (AL) amyloidosis are both plasma cell dyscrasias and may coexist in the same patients, contributing to distinct clinical outcomes. Although they share a similar spectrum of cytogenetic abnormalities (CA), the distribution and prognostic value of these aberrations are varied. The use of fluorescence in situ hybridization (FISH) in predicting outcomes for MM is well established, while the prognostic value of CA in AL amyloidosis, notably in MM with concurrent AL amyloidosis, is still evolving. This study aimed to evaluate the outcomes of patients with MM, AL amyloidosis and coexistence of the two disorders, and address the landscape and prognostic implication of CA in patients with these 3 types of plasma cell dyscrasias.

Methods: A total of 902 consecutive patients with newly diagnosed MM between January 2007 and October 2021 or AL amyloidosis between January 2007 and June 2023 were retrospectively included. Patients were classified as MM alone, MM with coexistent AL amyloidosis (MM-AL) or primary AL amyloidosis alone (pAL-alone). The presence of symptomatic MM was based on the International Myeloma Working Group (IMWG) criteria and the diagnosis of AL amyloidosis was confirmed by Congo-red-positive biopsy and immunoelectron microscopy study of the amyloid. Demographic and clinical characteristics, FISH results, along with real-world effectiveness outcomes including best hematologic response, overall survival (OS), and progression free survival (PFS) were assessed.

Results: Of the 902 patients enrolled, 658 patients were in the MM-alone group, 99 in the MM-AL group and 145 in the pAL-alone group. The three groups share a similar incidence rate of CA, while the prevalence of t(11;14) was significantly higher in pAL-alone group than MM-AL and MM-alone group (41.0% vs. 24.5% vs. 16.6%, $p<0.001$), and the prevalence of del13q14, gain1q21 and IMWG high-risk cytogenetic abnormalities [HRCA, including t(4;14), t(14;16) and del17p] decrease in turn in MM-alone, MM-AL and pAL-alone group(del13q14, 46.4% vs. 38.1% vs. 29.7%, $p=0.005$; gain1q21, 52.6% vs. 46.4% vs. 27.8%, $p<0.001$; HRCA, 27.5 % vs. 17.2 vs. 7.6%, $p<0.001$) (Table). In patients with AL amyloidosis with or without coexisting MM, presence of del13q14 was associated with higher level of baseline bone marrow plasmacytosis and difference in involved and uninvolved free light chain (dFLC). Compared with the MM-alone group, a significantly lower proportion of the MM-AL group achieved hematologic response (90.4% vs. 67.7%, $p<0.001$) and very good partial remission (VGPR, 44.6% vs. 68.9%, $p<0.001$). The OS of patients with MM-AL was significantly inferior to patients with MM-alone (median, 25.2 months vs. 96.8 months, $p<0.001$) or pAL-alone (median, 25.2 months vs. not reached, $p<0.001$)(Figure B), while patients with MM-alone has shorter PFS than AL amyloidosis irrespective of the presence or absence of MM (MM-alone vs. pAL-alone: median, 56.8 months vs. not reached, $p=0.007$; MM-alone vs. MM-AL: median, 56.8 months vs. not reached, $p=0.515$) (Figure A). Other than MM-alone group, no significant difference in PFS and OS was found between pAL patients with and without HRCA, as well as the MM-AL group, indicating the difference in prognostic implications of common HRCAs among the three groups. When stratified by the type of plasma cell disorders and status of t(11;14) (a CA that strongly related to poor outcome of pAL), patients with MM-AL and t(11;14) presented the worst OS (median, 8.2 months, $p<0.001$) (Figure C).

Conclusion: This comparative study presented an apparent discrepancy in distribution and prognostic role of CA in different plasma cell dyscrasias. Comparing with patients with MM-alone and pAL-alone, MM-AL patients, notably with the presence of t(11;14), had the poorest survival.

Disclosures No relevant conflicts of interest to declare.

Table. Presence of cytogenetic abnormalities in patients with MM-alone, MM-AL and pAL-alone detected by fluorescence in situ hybridization.

n/N (%)	MM	MM-AL	pAL	P
Normal	169/658 (25.7)	25/99 (25.3)	39/145 (26.9)	0.946
t(11;14)	96/580 (16.6)	23/94 (24.5)	59/144 (41.0)	<0.001
del13q14	299/645 (46.4)	37/97 (38.1)	43/145 (29.7)	0.005
gain 1q21	346/658 (52.6)	45/97 (46.4)	40/144 (27.8)	<0.001
del17p	78/656 (11.9)	6/99 (6.1)	5/145 (3.4)	0.003
t(4;14)	107/584 (18.3)	11/96 (11.5)	7/143 (4.9)	<0.001
t(14;16)	15/583 (2.6)	2/96 (2.1)	0/143 (0)	0.153
HRCA	181/658 (27.5)	17/99 (17.2)	11/145 (7.6)	<0.001

HRCA, high-risk cytogenetic abnormalities, including t(4;14), t(14;16), 1q21 and del17p.

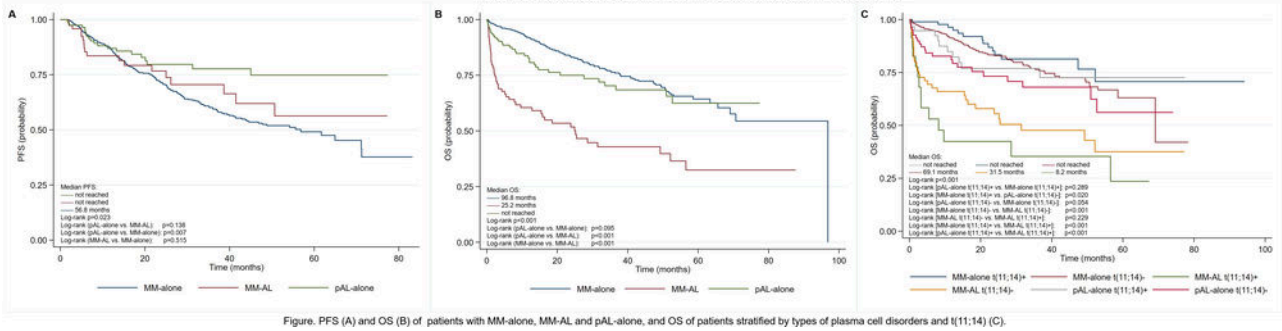

Figure. PFS (A) and OS (B) of patients with MM-alone, MM-AL and pAL-alone, and OS of patients stratified by types of plasma cell disorders and t(11;14) (C).

Figure 1

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