

MAF translocation remains a strong prognostic factor despite concurrent chromosomal abnormalities

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Table S1. Clinical Characteristics at diagnosis: t(14;16)/t(14;20)-positive group (n=792) vs. t(14;16)/t(14;20)-negative group (n=38).

Characteristics % or mean	non-t(14;16)/t(14;20) (n=792)	t(14;16)/t(14;20) (n=38)	P-value
age (median [IQR])	59.0 (51.0, 65.0)	53.0 (50.0, 64.0)	0.154
age≥55 (%)	523/792 (66.0)	17/37 (45.9)	0.012
male (%)	451/792 (56.9)	16/38 (42.1)	0.072
anemia (%)	373/773 (48.3)	26/38 (68.4)	0.019
PLT<100×10 ³ /μl (%)	91/773 (11.8)	14/38 (36.8)	<0.001
hyercalcemia (%)	100/769 (13.0)	2/37 (5.4)	0.213
renal impairment (%)	97/778 (12.5)	2/38 (5.3)	0.304
bone lesions (%)	657/736 (89.3)	33/37 (89.2)	1.000
elevated LDH (%)	135/779 (17.3)	10/37 (27.0)	0.132
β2MG ≥ 5.5mg/l (%)	297/754 (39.4)	21/38 (55.3)	0.051
extramedullary disease (%)	19/582 (3.3)	3/34 (8.8)	0.115
circulating PC (%)	113/526 (21.5)	8/25 (32.0)	0.217
M component (%)			0.183
IgG	379/792 (52.2)	27/36 (69.4)	
IgA	199/792 (27.4)	7/36 (19.4)	
light chain	148/792 (20.4)	4/36 (11.1)	
light chain subtype (%)			0.841
kappa	380/775 (49.0)	18/38 (47.4)	
lambda	395/775 (51.0)	20/38 (52.6)	
ISS (%)			0.571
I	152/762 (19.9)	5/38 (13.2)	
II	272/762 (35.7)	14/38 (36.8)	
III	338/762 (44.4)	19/38 (50.0)	
RISS (%)			0.001
I	107/720 (14.9)	2/38 (5.3)	
II	456/720 (63.3)	18/38 (47.4)	
III	157/720 (21.8)	18/38 (47.4)	
R2ISS (%)			0.182
I	74/717 (10.3)	1/37 (2.7)	
II	160/717 (22.3)	6/37 (16.2)	
III	377/717 (52.6)	21/37 (56.8)	
IV	106/717 (14.8)	9/37 (24.3)	
immunophenotype (%)			
CD20 (%)	175/655 (26.7)	9/37 (24.3)	0.749
CD56 (%)	456/674 (67.7)	5/37 (13.5)	<0.001
CD200 (%)	487/591 (82.4)	8/30 (26.7)	<0.001
CD27 (%)	477/586 (81.4)	18/30 (60.0)	0.004

Characteristics % or mean	non-t(14;16)/t(14;20) (n=792)	t(14;16)/t(14;20) (n=38)	P-value
CD28 (%)	149/654 (22.8)	17/36 (47.2)	0.001
abnormal karyotype (%)	137/701 (19.5)	11/35 (31.4)	0.087
complex karyotype (%)	108/701 (15.4)	10/35 (28.6)	0.038
at least one HRCA (%)	365/746 (48.9)	29/35 (82.9)	<0.001
at least two HRCA (%)	57/746 (7.6)	6/35 (17.1)	0.055
del(17p13) (%)	75/769 (9.8)	8/38 (21.1)	0.048
1q21+ (%)	315/771 (40.9)	27/37 (73.0)	<0.001
1q21 gain (= 3 copies)	127/771 (16.5)	8/37 (21.6)	
1q21 amp (≥ 4 copies)	92/771 (11.9)	16/37 (43.2)	
copy number missing	96/771 (12.5)	3/37 (8.1)	
del(1p32) (%)	39/717 (5.4)	2/36 (5.6)	1.000
del(13q14) (%)	299/688 (43.5)	24/37 (64.9)	0.011
TP53 gene (%)			
One allele mutation (%)	16/220 (7.3)	2/9 (22.2)	0.151
bi-allelic inactivation (%)	7/220 (3.2)	1/9 (11.1)	0.278
treatment			
PI-based induction therapy (%)	504/534 (94.4)	26/33 (78.8)	0.003
Up-front ASCT (%)	226/534 (42.3)	11/33 (33.3)	0.310

Abbreviations: Anemia, haemoglobin value <10 g/dL; Elevated LDH, serum lactate dehydrogenase ≥ 247 U/L; Hypercalcemia, corrected serum calcium >2.75mmol/L; ISS, International Staging System; Renal insufficiency, serum creatinine > 2mg/dL; R-ISS, Revised International Staging System; Extramedullary Disease, soft tissue or viscera in extraosseous locations; Circulating PC, presence of circulating plasma cells; R2-ISS, Second Revision of the International Staging System; PI, proteasome inhibitor; IMiDs, immunomodulating drug; ASCT, autologous stem cell transplantation; HRCA, high-risk chromosomal abnormality, including the presence of del(17p), del(1p32), gain/amp(1q21).

Table S2. Multivariate analysis of overall and progression-free survival for newly diagnosed multiple myeloma patients before and after PSM.

	Multivariate analysis before PSM				Multivariate analysis after PSM				
	PFS		OS		PFS		OS		
	HR(95%CI for HR)	p	HR(95%CI for HR)	p	HR(95%CI for HR)	p	HR(95%CI for HR)	p	
t(14;16)/t(14;20)	2.38(1.49-3.80)	<0.001	2.09(1.17-3.74)	0.013	t(14;16)/t(14;20)	2.26(1.26-4.04)	0.006	2.56(1.32-5.00)	0.006
anemia	1.31(0.96-1.78)	0.087	1.07(0.69-1.65)	0.763	anemia	1.45(0.77-2.72)	0.247		
PLT<100×10 ⁹ /L	1.59(1.08-2.33)	0.018	1.89(1.16-3.08)	0.011	PLT<100×10 ⁹ /L	2.56(1.38-4.76)	0.003	1.73(0.80-3.72)	0.164
ISS III	1.02(0.76-1.36)	0.905	1.61(1.08-2.38)	0.018	ISS III			1.88(0.97-3.67)	0.062
elevated LDH	1.43(1.02-1.99)	0.037	1.56(1.00-2.42)	0.048	elevated LDH	1.69(0.92-3.10)	0.091	1.51(0.70-3.27)	0.297
1q21+	1.34(1.01-1.80)	0.045	1.40(0.93-2.10)	0.104	1q21+				
del(17p)	1.16(0.74-1.80)	0.518	1.24(0.70-2.19)	0.464	del(17p)				
del(13q14)					del(13q14)				
yes vs. no			1.23(0.82-1.84)	0.309	yes vs. no				
NA vs. no			0.55(0.27-1.15)	0.111	NA vs. no				
complex karyotype					complex karyotype				
yes vs. no	1.23(0.84-1.81)	0.288	1.43(0.87-2.35)	0.156	yes vs. no				
NA vs. no	0.67(0.36-1.22)	0.191	1.01(0.47-2.20)	0.978	NA vs. no				
upfront ASCT	0.52(0.38-0.71)	<0.001	0.44(0.28-0.68)	<0.001	upfront ASCT	0.32(0.16-0.64)	0.001	0.44(0.20-0.94)	0.034
PI based induction therapy	0.65(0.42-1.00)	0.049	0.58(0.34-0.98)	0.041	PI based induction therapy				

Abbreviations: Anemia, haemoglobin value <10 g/dL; Elevated LDH, serum lactate dehydrogenase ≥ 247 U/L; ISS, International Staging System; PI, proteasome inhibitor; HR, hazard ratio; PFS, progression-free survival; OS, overall survival; ASCT, autologous stem cell transplantation.

Table S3. Baseline characteristics before and after PSM analysis.

	Before PSM					After PSM				
	Overall	non-MAF/MAFB	MAF/MAFB	p	SMD	Overall	non-MAF/MAFB	MAF/MAFB	p	SMD
n	567	534	33			109	81	28		
age\geq55 (%)	338 (59.6)	324 (60.7)	14 (42.4)	0.059	0.371	65 (59.63)	53 (65.43)	12 (42.86)	0.061	0.465
male (%)	334 (58.9)	321 (60.1)	13 (39.4)	0.030	0.424	56 (51.38)	45 (55.56)	11 (39.29)	0.206	0.330
PLT<100\times10⁹/L (%)	70 (12.3)	61 (11.4)	9 (27.3)	0.016	0.410	23 (21.10)	15 (18.52)	8 (28.57)	0.392	0.239
anemia (%)	278 (49.0)	256 (47.9)	22 (66.7)	0.056	0.386	69 (63.30)	50 (61.73)	19 (67.86)	0.724	0.129
elavated LDH (%)	99 (17.5)	88 (16.5)	11 (33.3)	0.025	0.397	25 (22.94)	17 (20.99)	8 (28.57)	0.574	0.176
ISS (%)				0.752	0.143				0.878	0.115
I	115 (20.3)	110 (20.6)	5 (15.2)			19 (17.43)	15 (18.52)	4 (14.29)		
II	211 (37.2)	198 (37.1)	13 (39.4)			41 (37.61)	30 (37.04)	11 (39.29)		
III	241 (42.5)	226 (42.3)	15 (45.5)			49 (44.95)	36 (44.44)	13 (46.43)		
RISS (%)				0.003	0.569				0.135	0.437
I	74 (13.7)	72 (14.2)	2 (6.1)			12 (11.1)	10 (12.5)	2 (7.1)		
II	347 (64.1)	331 (65.2)	16 (48.5)			62 (57.4)	49 (61.3)	13 (46.4)		
III	120 (22.2)	105 (20.7)	15 (45.5)			34 (31.5)	21 (26.2)	13 (46.4)		
R2ISS (%)				0.071	0.482				0.948	0.138
I	60 (10.6)	59 (11.0)	1 (3.0)			6 (5.5)	5 (6.2)	1 (3.6)		
II	127 (22.4)	122 (22.8)	5 (15.2)			17 (15.6)	13 (16.0)	4 (14.3)		
III	300 (52.9)	282 (52.8)	18 (54.5)			59 (54.1)	43 (53.1)	16 (57.1)		
IV	80 (14.1)	71 (13.3)	9 (27.3)			27 (24.8)	20 (24.7)	7 (25.0)		

	Before PSM					After PSM				
	Overall	non-MAF/MAFB	MAF/MAFB	p	SMD	Overall	non-MAF/MAFB	MAF/MAFB	p	SMD
1q21 (%)				<0.001	1.016				0.950	0.130
negative	320 (56.4)	313 (58.6)	7 (21.2)			30 (27.52)	23 (28.40)	7 (25.00)		
gain(1q21)	98 (17.3)	90 (16.9)	8 (24.2)			28 (25.69)	21 (25.93)	7 (25.00)		
amp(1q21)	73 (12.9)	58 (10.9)	15 (45.5)			38 (34.86)	27 (33.33)	11 (39.29)		
positive with unkonwn copy	76 (13.4)	73 (13.7)	3 (9.1)			13 (11.93)	10 (12.35)	3 (10.71)		
del(17p) (%)	55 (9.7)	49 (9.2)	6 (18.2)	0.164	0.264	14 (12.84)	9 (11.11)	5 (17.86)	0.554	0.193
del(13q14) (%)	235 (41.4)	214 (40.1)	21 (63.6)	0.020	0.543	63 (57.80)	45 (55.56)	18 (64.29)	0.690	0.194
number of HRCA (%)				0.002	0.775				0.760	0.226
0	258 (45.5)	253 (47.4)	5 (15.2)			24 (22.02)	19 (23.46)	5 (17.86)		
1	241 (42.5)	219 (41.0)	22 (66.7)			69 (63.30)	50 (61.73)	19 (67.86)		
≥2	42 (7.4)	37 (6.9)	5 (15.2)			14 (12.84)	11 (13.58)	3 (10.71)		
upfront ASCT (%)	530 (93.5)	504 (94.4)	26 (78.8)	0.002	0.470	97 (88.99)	73 (90.12)	24 (85.71)	0.770	0.136
PI based induction therapy (%)	237 (41.8)	226 (42.3)	11 (33.3)	0.404	0.186	37 (33.94)	27 (33.33)	10 (35.71)	1.000	0.050

Abbreviations: Anemia, haemoglobin value <10 g/dL; Elevated LDH, serum lactate dehydrogenase ≥ 247 U/L; ISS, International Staging System; R-ISS, Revised International Staging System; R2-ISS, Second Revision of the International Staging System; PI, proteasome inhibitor; HR, hazard ratio; PFS, progression-free survival; OS, overall survival; ASCT, autologous stem cell transplantation; PSM: propensity score matching; MAF/MAFB, t(14;16)/t(14;20); SMD, Standardized Mean Difference; HRCA, high-risk chromosomal abnormality, including the presence of del(17p), del(1p32), gain/amp(1q21).