Supplemental Tables for:
Sorafenib Effectiveness in Advanced Hepatocellular Carcinoma
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Supplemental Table 1: Covariate Balance Following Propensity Score Matching

Characteristic	Before Matching			After Matching		
	No Treatment n=565 (70%)	Sorafenib N=242 (30%)	p-value	No Treatment N=223	Sorafenib N=223	P-value
Year of Diagnosis						
2008	141 (25%)	44 (18%)	0.003	43 (19%)	43 (19%)	0.855
2009	164 (29%)	53 (22%)		56 (25%)	52 (23%)	
2010	131 (23%)	66 (27%)		64 (29%)	60 (27%)	
2011	129 (23%)	79 (33%)		60 (27%)	68 (30%)	
Age						
Median (Q1, Q3)	74 (67, 82)	70 (64, 77)		71 (64, 79)	70 (64, 78)	
less than 64	119 (21%)	63 (26%)	<.001	56 (25%)	58 (26%)	0.890
65-74 yr	181 (32%)	99 (41%)		93 (42%)	88 (39%)	
75+ yr	265 (47%)	80 (33%)		74 (33%)	77 (35%)	
Sex						
Male	380 (67%)	186 (77%)	0.006	162 (73%)	168 (75%)	0.517
Female	185 (33%)	56 (23%)		61 (27%)	55 (25%)	
Race						
White	346 (61%)	139 (57%)	0.467	138 (62%)	128 (57%)	0.743
African American	67 (12%)	38 (16%)		30 (13%)	36 (16%)	
Asian	73 (13%)	29 (12%)		23 (10%)	27 (12%)	
Other	79 (14%)	36 (15%)		32 (14%)	32 (14%)	
Marital Status						
Married	208 (37%)	115 (48%)	0.011	98 (44%)	102 (46%)	0.858
Separated/Divorced/Widowed	231 (41%)	71 (29%)		72 (32%)	69 (31%)	
Single	100 (18%)	43 (18%)		53 (24%)	40 (18%)	
Other/Unknown	26 (5%)	13 (5%)		†	12 (5%)	
Census Tract Region						
Metro	482 (85%)	221 (91%)	0.053	201 (90%)	202 (91%)	0.966
Urban	35 (6%)	21 (9%)		22 (10%)	21 (9%)	
Rural	48 (8%)	†		†	†	
Census Tract % Below Poverty Line						
1st Quartile (lowest)	119 (21%)	67 (28%)	0.118	66 (30%)	59 (26%)	0.409

2nd Quartile	137 (25%)	51 (21%)		48 (22%)	48 (22%)	
3rd Quartile	158 (28%)	56 (23%)		39 (17%)	53 (24%)	
4th Quartile (highest)	141 (25%)	67 (28%)		70 (31%)	63 (28%)	
Modified Charlson Score						
0	52 (9%)	28 (12%)	0.129	20 (9%)	24 (11%)	0.817
1	76 (13%)	43 (18%)		39 (17%)	38 (17%)	
2+	437 (77%)	171 (71%)		164 (74%)	161 (72%)	
Number of Liver Comorbidities						
Mean (STD)	0.9 (1.2)	0.6 (1.1)	0.001	0.6 (0.9)	0.7 (1.1)	0.816
Prior AFP Screening						
0	360 (64%)	133 (55%)	0.054	137 (61%)	126 (57%)	0.537
1	102 (18%)	58 (24%)		43 (19%)	51 (23%)	
2+	103 (18%)	51 (21%)		43 (19%)	46 (21%)	
Hepatitis B Virus	42 (7%)	26 (11%)	0.121	21 (9%)	19 (9%)	0.740
Hepatitis C Virus	174 (31%)	76 (31%)	0.864	64 (29%)	71 (32%)	0.471
Alcoholic Liver Disease	86 (15%)	31 (13%)	0.373	24 (11%)	29 (13%)	0.464
Other Cause of Liver Disease	76 (13%)	27 (11%)	0.371	26 (12%)	26 (12%)	1.000
Tumor Extent						
Multiple lesions, no vascular invasion	231 (41%)	117 (48%)		107 (48%)	104 (47%)	0.852
Multiple lesions with vascular invasion	93 (16%)	57 (24%)	<.001	48 (22%)	53 (24%)	
Extension beyond liver, NOS	241 (43%)	68 (28%)		68 (30%)	66 (30%)	
Maximum Tumor Size						
<= 3cm	61 (11%)	35 (14%)	<.001	30 (14%)	34 (15%)	0.939
3 to 5cm	74 (13%)	†		†	†	
> 5cm	195 (35%)	123 (51%)		107 (48%)	108 (48%)	
Unknown	235 (42%)	84 (35%)		86 (39%)	81 (36%)	

† n<11. Cell merged with above to preserve confidentiality.

Table S2: Characteristics of Initial versus Subsequent Sorafenib Users

A	Initial Sorafenib N=422	Subsequent Sorafenib N=232	p-value
Year of Diagnosis			
2008	90 (21%)	54 (23%)	0.680*
2009	106 (25%)	65 (28%)	
2010	100 (24%)	52 (22%)	
2011	126 (30%)	61 (26%)	
First Line Therapy			
TACE	NA	149 (64%)	NA
Y90 Radioembolization		15 (6%)	
Curative surgery		29 (13%)	
Ablative surgery		16 (7%)	
Radiation (any)		23 (9%)	
Other drug therapy		†	
Age			
Median (Q1, Q3)	70 (63, 77)	70 (62, 76)	
less than 64	112 (27%)	65 (28%)	0.837*
65-74 yr	168 (40%)	94 (41%)	
75+ yr	142 (34%)	73 (31%)	
Sex			
Male	311 (74%)	154 (66%)	0.048*
Female	111 (26%)	78 (34%)	
Race			
White	254 (60%)	127 (55%)	0.282*
African American	58 (14%)	31 (13%)	
Asian	52 (12%)	41 (18%)	
Other	58 (14%)	33 (14%)	
Marital Status			
Married	192 (45%)	107 (46%)	0.635*
Separated/Divorced/Widowed	128 (30%)	78 (34%)	
Single	77 (18%)	47 (20%)	
Other/Unknown	25 (6%)	†	
Residence Area			
Metro	378 (90%)	209 (90%)	0.977*
Urban	15 (4%)	23 (9%)	

Rural	29 (7%)	†	
Census Tract % <Proverty			
1st Quartile (lowest)	104 (25%)	63 (27%)	0.290*
2nd Quartile	99 (24%)	66 (29%)	
3rd Quartile	109 (26%)	54 (23%)	
4th Quartile (highest)	108 (26%)	48 (21%)	
Modified Charlson Score			
0	45 (11%)	24 (10%)	0.881*
1	77 (18%)	39 (17%)	
2+	300 (71%)	169 (73%)	
Mean (STD) # of Liver Comorbidites	0.7 (1.0)	0.7 (1.1)	0.959**
Prior AFP Screening			
0	242 (57%)	95 (41%)	<.001*
1	99 (23%)	55 (24%)	
2+	81 (19%)	82 (35%)	
Hepatitis B Virus	41 (10%)	32 (14%)	0.113*
Hepatitis C Virus	133 (32%)	98 (42%)	0.01
Alcoholic Cirrhosis	58 (14%)	34 (15%)	0.75
Other Cause of Liver Disease	48 (11%)	30 (13%)	0.56
Tumor Extent			
Multiple lesions, no vascular invasion	210 (50%)	146 (63%)	0.005*
Multiple lesions with vascular invasion	96 (23%)	38 (16%)	
Extension beyond liver, NOS	116 (27%)	48 (21%)	

† n<11. Cell merged with above to preserve confidentiality.

Table S3. Effect of Initial Sorafenib Compared to No Treatment on the Risk of Death From the Time of Diagnosis of HCC. *Rates of death by treatment group and the mortality Risk Ratio (RR) are shown for multiple time points from the date of diagnosis.*

Time Point	MODEL	No Treatment		Sorafenib		Risk Difference	RR, 95% CI	p-value
		Events/n	% Deceased	Events/n	% Deceased			
3 Months	Unmatched	124/565	22%	52/242	21%	1%	0.98, 0.74-1.30	0.89
	PS Matched	53/223	24%	51/223	23%	1%	0.96, 0.69-1.35	0.82
6 Months	Unmatched	307/565	54%	124/242	51%	3%	0.94, 0.82-1.09	0.43
	PS Matched	127/223	57%	118/223	53%	4%	0.93, 0.79-1.10	0.39
12 Months	Unmatched	434/565	77%	184/242	76%	1%	0.99, 0.91-1.08	0.81
	PS Matched	177/223	79%	174/223	78%	1%	0.98, 0.89-1.08	0.73

Table S4A, Sensitivity Analysis of the Effect of Varying Landmarks (30, 60, 90 days) on Mortality Risk Ratios Anchored at Diagnosis in the Propensity Score Matched Cohort

Model	Treatment group	3 months from Diagnosis		6 months from Diagnosis		12 months from Diagnosis	
		Events/n	RR, 95% CI	Events/n	RR, 95% CI	Events/n	RR, 95% CI
30 day	None	74/150	0.86, 0.68- 1.11	97/150	1.00, 0.85- 1.18	119/150	1.05, 0.94, 1.17
	Sorafenib	64/150		97/150		125/150	
60 day	None	53/223	0.96, 0.69-1.35	127/223	0.93, 0.79-1.10	177/223	0.98, 0.89-1.08
	Sorafenib	51/223		118/223		174/223	
90 day	None	0/181	na	81/181	0.86, 0.68- 1.10	125/181	1.07, 0.94-1.22
	Sorafenib	0/181		70/181		134/181	

Table S4B, Sensitivity Analysis of the Effect of Varying Landmarks (30, 60, 90 days) on Mortality Risk Ratios Anchored at 60 days Post-Diagnosis in the Propensity Score Matched Cohort

Model	Treatment group	3 months from 60d Anchor		6 months from 60d Anchor		12 months from 60d Anchor	
		Events/n	RR, 95% CI	Events/n	RR, 95% CI	Events/n	RR, 95% CI
30 day	None	49/150	1.00, 0.72-1.38	64/150	1.16, 0.90-1.48	85/150	1.05, 0.86-1.27
	Sorafenib	49/150		74/150		89/150	
60 day	None	113/223	0.88, 0.72-1.07	153/223	0.97, 0.86-1.11	188/223	0.95, 0.87-1.04
	Sorafenib	99/223		149/223		179/223	
90 day	None	65/181	0.77, 0.57-1.04	98/181	1.04, 0.86-1.25	135/181	1.04, 0.92-1.16
	Sorafenib	50/181		102/181		140/181	