

Supplemental Material

Supplemental Table I. Overall demographics, clinical and procedure characteristics

	All Patients (n=436)	FPR (n=254)	non-FPR (n=182)	p value
Demographics& risk factors n (%)				
Age (years) [IQR]	66 [54-77]	65 [54-77]	66.5 [54-77]	0.88
Female	229 (52.5)	138 (54.3)	91 (50)	0.37
Current smokers	67 (15.4)	24 (13.2)	43 (16.9)	0.29
Hypertension	327 (75)	194 (76.4)	133 (73.1)	0.43
Diabetes mellitus	116 (26.6)	68 (26.8)	48 (26.4)	0.93
Hyperlipidemia	145 (33.3)	81 (31.9)	64 (35.2)	0.47
Atrial fibrillation	158 (36.2)	85 (33.5)	73 (40.1)	0.16
Clinical and procedure findings n (%)				
LKW-Puncture (min) [IQR]	319.5 [220-533]	333 [236.8-574.5]	296 [202.5-529]	0.10
Baseline NIHSS score [IQR]	17.3±5.8	17±6	17.9±5.5	0.12
Pre-procedure IV-tPA	165 (37.8)	92 (36.2)	73 (40.1)	0.41
ASPECTS [IQR]	8 [7-9]	8 [7-10]	8 [7-9]	0.14
Site of occlusion:				
Internal carotid artery	108 (24.8)	62 (24.4)	46 (25.3)	
Middle cerebral artery-M1 segment	328 (75.2)	192 (75.6)	136 (74.7)	0.84
First order technique:				
SR	294 (67.4)	176 (69.3)	118 (64.8)	
CA	52 (11.9)	30 (11.8)	22 (12.1)	
Combined SR & CA	90 (20.6)	48 (18.9)	42 (23.1)	0.54
General anesthesia	47 (10.8)	26 (10.2)	21 (11.5)	0.67
Balloon guide catheter	376 (86.2)	223 (87.8)	153 (84.1)	0.27
Procedure duration (min) [IQR]	44.5 [30-67.8]	34 [26-48]	64.5 [45.8-89.3]	<0.001
LKW-Reperfusion(mTICI2c-3)(min) [IQR]	383.5 [270-618.5]	381.5 [269.5-617]	387.5 [270.8-627]	0.93
Outcome n (%)				
sICH	21 (4.8)	13 (5.1)	8 (4.4)	0.73
90-day mortality	74 (17)	36 (14.2)	38 (20.9)	0.07
90-day mRS (0-2)	224 (51.4)	144 (56.7)	80 (44)	0.009

Abbreviations: IQR; interquartile range, LKW; Last Known Well, ASPECTS; Alberta Stroke Program Early CT Score, NIHSS; National Institute of Health Stroke Scale, IV-tPA; intravenous tissue plasminogen activator, SR; Stent-Retriever, CA; Contact Aspiration, sICH; symptomatic intracranial hemorrhage, mRS; modified Rankin Scale

Supplemental Table II. Multivariable regression analyses for good outcome (90-day mRS 0-2)

	Odds ratio	95% CI	p value
All Patients			
Age	0.961	0.946 - 0.976	<0.001
Baseline NIHSS score	0.931	0.895 - 0.969	<0.001
ASPECTS	1.253	1.093 - 1.437	0.001
Diabetes mellitus	0.467	0.283 - 0.771	0.003
Current smoker	2.413	1.278 - 4.556	0.007
First pass reperfusion	1.703	1.103 - 2.629	0.016
Pre-procedure IV-tPA	1.668	1.029 - 2.705	0.038
General anesthesia	0.485	0.233 - 1.010	0.05
LKW-Reperfusion	1.00	0.999 - 1.00	0.31
Hypertension	0.746	0.447 - 1.245	0.26
Group with ASPECTS > 7			
Age	0.963	0.944 - 0.982	<0.001
Pre-procedure IV-tPA	2.048	1.121 - 3.742	0.02
Diabetes mellitus	0.402	0.219 - 0.737	0.003
Current smokers	2.211	1.004 - 4.871	0.049
General anesthesia	0.414	0.161 - 1.061	0.07
Baseline NIHSS score	0.959	0.913 - 1.008	0.10
Hypertension	0.726	0.382 - 1.380	0.33
First pass reperfusion	1.372	0.798 - 2.358	0.25
LKW-Reperfusion	1.00	0.999 - 1.001	0.53
Group with ASPECTS ≤ 7			
Baseline NIHSS score	0.860	0.798 - 0.927	<0.001
First pass reperfusion	3.748	1.590 - 8.838	0.003
Age	0.954	0.927 - 0.982	0.001
Current smoker	5.355	1.653 - 17.342	0.005
LKW-Reperfusion	0.999	0.998 - 1.00	0.22
Atrial fibrillation	0.784	0.301 - 2.041	0.62
Diabetes mellitus	0.574	0.215 - 1.536	0.27
Hypertension	0.948	0.375 - 2.394	0.91
Group with HIR ≥ 0.3			
Age	0.945	0.921 - 0.970	<0.001
First pass reperfusion	2.204	1.148 - 4.233	0.01
rCBF<30%	0.984	0.971 - 0.999	0.03
Current smoker	2.358	0.996 - 5.584	0.05
LKW-Reperfusion	0.999	0.998 - 1.00	0.07
General anesthesia	0.337	0.101 - 1.123	0.08
Baseline NIHSS score	0.954	0.900 - 1.010	0.11
Diabetes mellitus	0.541	0.259 - 1.134	0.10
Aspects	1.170	0.959 - 1.427	0.12
Hypertension	0.846	0.402 - 1.781	0.66
Pre-procedure IV-tPA	1.707	0.826 - 3.526	0.15
Group with HIR < 0.3			
Age	0.966	0.937 - 0.995	0.02
General anesthesia	0.110	0.012 - 1.019	0.05
Site of occlusion (ICA)	0.431	0.147 - 1.271	0.13
Baseline NIHSS score	0.956	0.882 - 1.037	0.28
First pass reperfusion	1.524	0.592 - 3.920	0.38
LKW-Reperfusion	0.999	0.998 - 1.00	0.20

Supplemental Table III. Demographics, clinical and procedure characteristics (matched groups with ASPECTS >7)

	All Patients (n=196)	FPR (n=98)	non-FPR (n=98)	p value
Demographics& risk factors n (%)				
Age (years) mean ± SD	66.2± 15.5	65.5 ± 16.4	66.9 ± 14.6	0.55
Female	108 (55.1)	57 (58.2)	51 (52)	0.40
Current smokers	28 (14.3)	15 (53.6)	13 (46.4)	0.68
Hypertension	142 (72.4)	69 (70.4)	73 (74.5)	0.52
Diabetes mellitus	56 (28.6)	26 (26.5)	30 (30.6)	0.53
Hyperlipidemia	62 (31.6)	24 (24.5)	38 (38.8)	0.03
Atrial fibrillation	81 (41.3)	37 (37.8)	44 (44.9)	0.31
Clinical and procedure findings n (%)				
LKW-Puncture (min) [IQR]	297 [204.5-503.3]	325 [241-507.5]	283 [200-498]	0.10
Baseline NIHSS score mean ± SD	17.2 ± 5.5	16.9 ± 5.4	17.5 ± 5.7	0.40
Pre-procedure IV-tPA	88 (44.9)	47 (48)	41 (41.8)	0.39
ASPECTS [IQR]	9 [8-10]	9 [8-10]	9 [8-10]	0.15
Site of occlusion: Internal carotid artery Middle cerebral artery-M1segment	49 (25) 147 (75)	25 (25.5) 73 (74.5)	24 (24.5) 74 (75.5)	0.87
First-line technique: SR CA Combined SR & CA	147 (75) 23 (11.7) 26 (13.3)	78 (79.6) 12 (12.2) 8 (8.2)	69 (70.4) 11 (11.2) 18 (18.4)	0.11
General anesthesia	18 (9.2)	8 (8.2)	10 (10.2)	0.62
Balloon guide catheter	168 (85.7)	87 (88.8)	81 (82.7)	0.22
Procedure duration (min) [IQR]	49.5 [32-70]	35 [26.8-52]	63 [46.8-90.5]	<0.001
LKW-Reperfusion (mTICI2c-3)(min) [IQR]	365.5 [270-560.5]	371.5 [276-556.8]	357 [263.5-624]	0.79
Outcome n (%)				
sICH	7 (3.6)	2 (2)	5 (5.1)	0.45
90-day mortality	35 (17.9)	13 (13.3)	22 (22.4)	0.09
90-day mRS 0-2	112 (57.1)	61 (62.2)	51 (52)	0.15

Abbreviations: IQR; interquartile range, LKW; Last Known Well, ASPECTS; Alberta Stroke Program Early CT Score, NIHSS; National Institute of Health Stroke Scale, IV-tPA; intravenous tissue plasminogen activator, SR; Stent-Retriever, CA; Contact Aspiration, sICH; symptomatic intracranial hemorrhage, mRS; modified Rankin Scale

Supplemental Table IV. Demographics, clinical and procedure characteristics (matched groups with ASPECTS ≤ 7)

	All Patients (n=118)	FPR (n=59)	non-FPR (n=59)	p value
Demographics& risk factors n (%)				
Age (years) mean \pm SD	64.4 \pm 16	65 \pm 16	63.7 \pm 16	0.64
Female	60 (50.8)	34 (57.6)	26 (44.1)	0.14
Current smokers	13 (11)	5 (8.5)	8 (13.6)	0.38
Hypertension	89 (75.4)	44 (74.6)	45 (76.3)	0.83
Diabetes mellitus	30 (25.4)	16 (27.1)	14 (23.7)	0.67
Hyperlipidemia	40 (33.9)	22 (37.3)	18 (30.5)	0.44
Atrial fibrillation	35 (29.7)	15 (25.4)	20 (33.9)	0.31
Clinical and procedure findings n (%)				
LKW-Puncture (min) [IQR]	329.5 [230.8-521.3]	289 [225-437]	362 [231-529]	0.43
Baseline NIHSS score mean \pm SD	18.3 \pm 5	18.5 \pm 5.1	18.1 \pm 5	0.65
Pre-procedure IV-tPA	44 (37.3)	21 (35.6)	23 (39)	0.70
ASPECTS [IQR]	7 [6-7]	7 [5-7]	6 [6-7]	0.87
Site of occlusion:				
Internal carotid artery	34 (28.8)	19 (32.2)	15 (25.4)	
Middle cerebral artery-M1segment	84 (71.2)	40 (67.8)	44 (74.6)	0.42
First-line technique:				
SR	79 (66.9)	46 (78)	33 (55.9)	
CA	16 (13.6)	7 (11.9)	9 (15.3)	
Combined SR & CA	23 (19.5)	6 (10.2)	17 (28.8)	0.02
General anesthesia	15 (12.7)	7 (11.9)	8 (13.6)	0.78
Balloon guide catheter	101 (85.6)	49 (83.1)	52 (88.1)	0.43
Procedure duration (min) [IQR]	47.5 [33-70]	40 [32-53]	63 [40-83]	<0.001
LKW- reperfusion (min) [IQR]	389.5 [281.8-579.5]	337 [270-526]	426 [297-603]	0.15
Outcome n (%)				
sICH	6 (5.1)	4 (6.8)	2 (3.4)	0.40
90-day mortality	24 (20.3)	11 (18.6)	13 (22)	0.65
90-day mRS 0-2	44 (37.3)	28 (47.5)	16 (27.1)	0.02

Abbreviations: IQR; interquartile range, LKW; Last Known Well, ASPECTS; Alberta Stroke Program Early CT Score, NIHSS; National Institute of Health Stroke Scale, IV-tPA; intravenous tissue plasminogen activator, SR; Stent-Retriever, CA; Contact Aspiration, sICH; symptomatic intracranial hemorrhage, mRS; modified Rankin Scale

Supplemental Table V. Demographics, clinical and procedure characteristics (matched groups with HIR ≥ 0.3)

	All Patients (n=170)	FPR (n=85)	non-FPR (n=85)	p value
Demographics& risk factors n (%)				
Age (years) mean \pm SD	65.5 [52.8-77]	68 [54-78.5]	63 [52-75.5]	0.27
Female	79 (46.5)	43 (50.6)	36 (42.4)	0.28
Current smokers	25 (14.7)	13 (15.3)	12 (14.1)	0.83
Hypertension	119 (70)	59 (69.4)	60 (70.6)	0.87
Diabetes mellitus	16 (26.7)	8 (23.5)	8 (38.1)	0.36
Hyperlipidemia	43 (25.3)	21 (24.7)	22 (25.9)	0.86
Atrial fibrillation	61 (35.9)	29 (34.1)	32 (37.6)	0.63
Clinical and procedure findings n (%)				
LKW-Puncture (min) [IQR]	300.5 [213.3-529.3]	297 [217-530]	304 [208.5-527]	0.96
Baseline NIHSS score mean \pm SD	17.5 \pm 5.5	17.9 \pm 5.4	17.2 \pm 5.6	0.46
Pre-procedure IV-tPA	66 (38.8)	36 (42.4)	30 (35.3)	0.35
ASPECTS [IQR]	8 [7-9]	8 [7-9.5]	8 [7-9]	0.70
rCBF<30%	10.2 [3-24.6]	7 [2.6-22.3]	11.6 [3-26.4]	0.32
Site of occlusion: Internal carotid artery Middle cerebral artery-M1segment	42 (24.7) 128 (75.3)	23 (27.1) 62 (72.9)	19 (22.4) 66 (77.6)	0.48
First order technique: SR CA Combined SR & CA	127 (74.7) 19 (11.2) 24 (14.1)	70 (82.4) 9 (10.6) 6 (7.1)	57 (67.1) 10 (11.8) 18 (21.2)	0.03
General anesthesia	12 (7.1)	6 (7.1)	6 (7.1)	1.00
Balloon guide catheter	158 (92.9)	77 (90.6)	81 (95.3)	0.23
Procedure duration (min) [IQR]	45 [31-69]	34 [26-47.5]	63 [41.5-87]	0.001
LKW-Reperfusion(mTICI2c-3)(min) [IQR]	367 [269.3-606]	347 [252.5-586]	379 [291.5-619]	0.35
Outcome n (%)				
sICH	7 (4.1)	5 (5.9)	2 (2.4)	0.44
90-day mortality	32 (18.8)	11 (12.9)	21 (24.7)	0.05
90-day mRS (0-2)	87 (51.2)	51 (60)	36 (42.4)	0.02

Abbreviations: IQR; interquartile range, LKW; Last Known Well, NIHSS; National Institute of Health Stroke Scale, IV-tPA; intravenous tissue plasminogen activator, ASPECTS; Alberta Stroke Program Early CT Score, rCBF; regional cerebral blood flow, SR; Stent Retriever, CA; Contact Aspiration, sICH; symptomatic intracranial hemorrhage, mRS; modified Rankin Scale

Supplemental Table VI. Demographics, clinical and procedure characteristics (matched groups with HIR <0.3)

	All Patients (n=68)	FPR (n=34)	non-FPR (n=34)	p value
Demographics& risk factors n (%)				
Age (years) mean ± SD	65.1±17.9	65.6±17.8	64.6±18.3	0.82
Female	50 (73.5)	25 (73.5)	25 (73.5)	1.00
Current smokers	5 (7.4)	4 (11.8)	1 (2.9)	0.16
Hypertension	50 (73.5)	24 (70.6)	26 (76.5)	0.58
Diabetes mellitus	14 (20.6)	7 (20.6)	7 (20.6)	1.00
Hyperlipidemia	16 (23.5)	5 (14.7)	11 (32.4)	0.09
Atrial fibrillation	20 (29.4)	9 (26.5)	11 (32.4)	0.60
Clinical and procedure findings n (%)				
LKW-Puncture (min) [IQR]	396.5 [258.8-726.5]	432 [321-621]	338 [201.3-737.8]	0.24
Baseline NIHSS score mean ± SD	16.7±5.4	16.7±5.8	16.7 ±5.2	0.98
Pre-procedure IV-tPA	28 (41.2)	14 (41.2)	14 (41.2)	1.00
ASPECTS [IQR]	9 [7-10]	9 [7.8-10]	8 [7-9]	0.20
rCBF<30%	1 [0-2.5]	1 [0-2.2]	1 [0-3]	0.78
Site of occlusion: Internal carotid artery Middle cerebral artery-M1segment	18 (26.5) 50 (73.5)	8 (23.5) 26 (76.5)	10 (29.4) 24 (70.6)	0.58
First order technique: SR CA Combined SR & CA	57 (83.8) 3 (4.4) 8 (11.8)	31 (91.2) 1 (2.9) 2 (5.9)	26 (76.5) 2 (5.9) 6 (17.6)	0.35
General anesthesia	5 (7.4)	3 (8.8)	2 (5.9)	1.00
Balloon guide catheter	63 (92.6)	32 (94.1)	31 (91.2)	0.64
Procedure duration (min) [IQR]	48.5 [32.3-63.8]	38.5 [27-58.3]	54.5 [44-77]	0.001
LKW-Reperfusion(mTICI2c-3) (min) [IQR]	453.5 [303.3-774.5]	477.5 [355.5-689]	435 [258.8-813.5]	0.39
Outcome n (%)				
sICH	6 (8.8)	2 (5.9)	4 (11.8)	0.67
90-day mortality	4 (5.9)	1 (2.9)	3 (8.8)	0.61
90-day mRS (0-2)	40 (58.8)	22 (64.7)	18 (52.9)	0.32

Abbreviations: IQR; interquartile range, LKW; Last Known Well, NIHSS; National Institute of Health Stroke Scale, IV-tPA; intravenous tissue plasminogen activator, ASPECTS; Alberta Stroke Program Early CT Score, rCBF; regional cerebral blood flow, SR; Stent Retriever, CA; Contact Aspiration, sICH; symptomatic intracranial hemorrhage, mRS; modified Rankin Scale

Supplemental Table VII. Multivariable regression analyses for good outcome (90-day mRS 0-2) in matched groups

	Odds ratio	95% CI	p value
Group with ASPECTS > 7			
Age	0.957	0.935 - 0.980	<0.001
Pre-procedure IV-tPA	3.066	1.507 – 6.240	0.002
Baseline NIHSS score	0.937	0.882 - 0.996	0.037
Diabetes mellitus	0.478	0.234 - 0.979	0.04
Hypertension	0.540	0.251 - 1.161	0.12
First pass reperfusion	1.382	0.730 - 2.617	0.32
LKW-Reperfusion	1.00	0.999-1.002	0.27
Group with ASPECTS ≤ 7			
First pass reperfusion	3.858	1.218 – 6.707	0.016
Current smoker	5.065	1.318 - 19.465	0.018
LKW-Reperfusion	0.998	0.997 – 1.00	0.07
Diabetes mellitus	0.386	0.130 - 1.144	0.09
Hypertension	0.619	0.241 - 1.591	0.32
Group with HIR ≥ 0.3			
Baseline NIHSS score	0.917	0.861 - 0.977	0.007
First pass reperfusion	2.218	1.149 - 4.284	0.018
Hypertension	0.523	0.247 - 1.104	0.09
Pre-procedure IV-tPA	1.527	0.748 - 3.120	0.25
Diabetes mellitus	0.694	0.322 - 1.498	0.35
LKW-Reperfusion	0.999	0.998 – 1.00	0.20
Group with HIR < 0.3			
Site of occlusion (ICA)	0.358	0.106 - 1.076	0.07
First pass reperfusion	1.692	0.598 - 4.788	0.32
General anesthesia	0.172	0.017 - 1.724	0.13
LKW-Reperfusion	0.999	0.998 - 1.001	0.32