Diving MCA and First-pass effect: A Subgroup Analysis from the ARISE II Study

ARISE II

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Mercy Health 9th Annual Stroke Symposium – 09/12/2025

Disclosures

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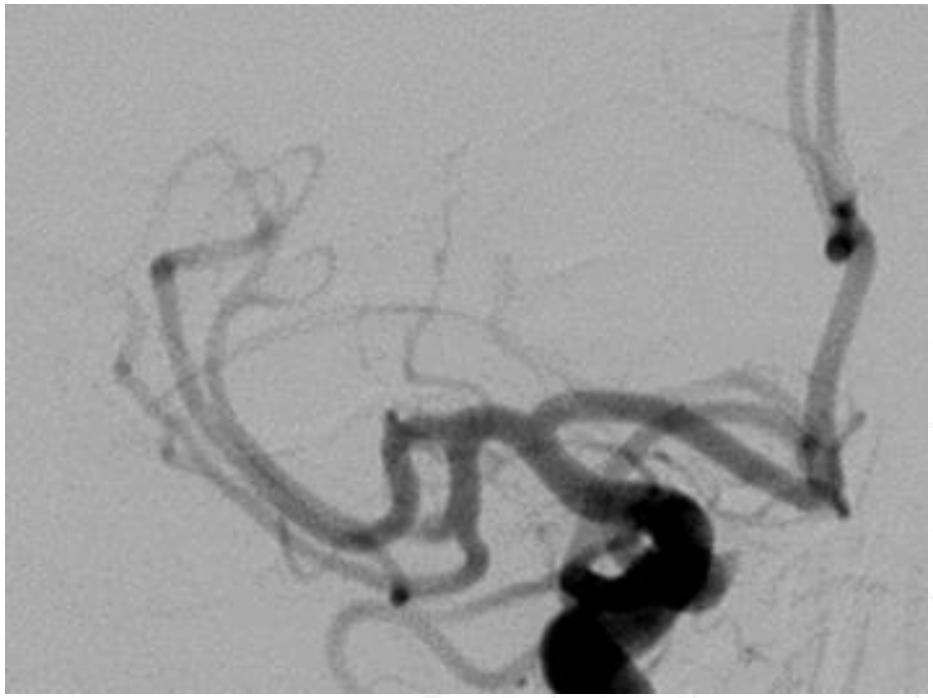
- Nothing to disclose.



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Introduction:

- The ultimate goal of mechanical thrombectomy is to achieve reperfusion of the ischemic territory, with higher (eTICI) correlating with better outcomes.
- Achieving first pass effect (FPE) has been shown to correlate with better clinical outcomes
- Vascular anatomy is known to play an important role in patient undergoing MT. In particular the tortuosity of the ICA and MCA were previously linked to lower rates of FPE as well as higher sICH.

- **Aim**: Assess the impact of MCA tortuosity on FPE, good functional outcomes as well as sICH in patients undergoing MT for MCA occlusion

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Methods:

- **Purpose/Design:** The ARISE II (Analysis of Revascularization in Ischemic Stroke with EmboTrap) study was a prospective global clinical study.
- All patients with confirmed M1 or M2 occlusion were identified.
- Angiographic outcomes were assessed by two blinded certified neuro-interventionalists.
- Patients with final eTICI score 0 were excluded from the final analysis or those with missing angiographic data.

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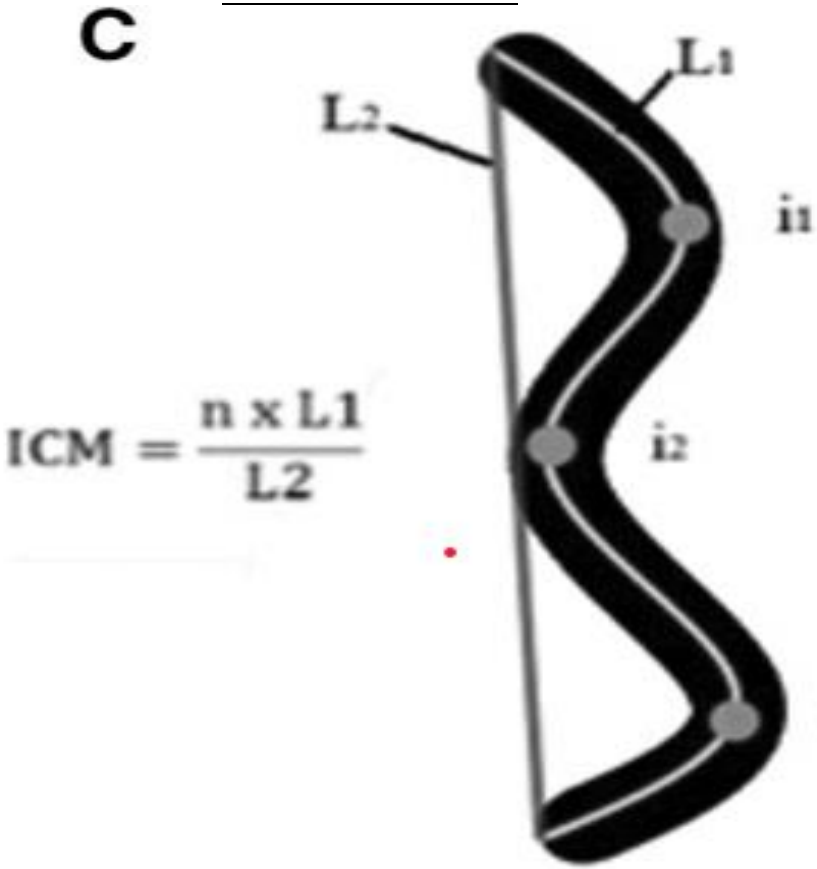
Methods:

- **Angiograp** … f tortuosity was calculated usi … I) score methods.
- Patients were … im and low) ICM

- The standardiz … ure was calculated basec … urvature.
- Patients were … curvature of <45° (straight segme … nd those with >90°



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Methods:

- **Primary endpoints:** The primary efficacy end point for this post-hoc analysis was achieving first pass effect (FPE), defined as achieving eTICI ≥2c in the target vessel within one pass.
- The primary safety end point of this post-hoc analysis was the development of symptomatic intracerebral hemorrhage (sICH) within 24 hours (−8/+12 hours) post-procedure
- Good functional outcome was measured based upon achieving modified ranking scale (mRS) 0-2 on 90-day follow-up

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Characteristics and demographics of patients based on ICM scores:

Variable	Total cohort	First tertile (56)	Second tertile (56)	Third tertile (56)	P-value
Age	68.7(13)	69(10.9)	65.8(15.9)	71.2(11.1)	0.087
Male sex	79(47%)	24 (42.9%)	26 (46.4%)	29(51.8%)	0.634
Renal disease	15(9.0%)	4(7.1%)	0(0.0%)	11(20.0%)	<.001
Hyperlipidemia	75(44.9%)	30(53.6%)	16(28.6%)	29(52.7%)	0.011
Hypertension	119(70.8%)	47(83.9%)	33(58.9%)	39(80.9%)	0.014
Atrial Fibrillation	69(41.1%)	23(41.1%)	18(32.1%)	28(50.9%)	0.133
Coronary Artery Disease	36(21.4%)	11(19.6%)	12(21.4%)	13(23.6%)	0.877
Baseline NIHSS Mean (SD)	15.4(4.5)	15.75(3.82)	15.32(4.66)	15.21(5.04)	0.804
Baseline ASPECTS Median (IQR)	10 (0)	10(0)	10(1)	10(1)	0.276
Thrombolytics	112(66.7%)	40(71.4%)	36(64.3%)	36(64.3%)	0.651
Balloon Guide Catheter	116 (69%)	41(73.2%)	35(62.5%)	40(70.1%)	0.422

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Characteristics and demographics of patients based on angulation of M1 segment:

Variable	Total cohort	< 45° (98)	45-90° (47)	>90° (21)	P-value
Age	68.7(13)	68(13.15)	68.7(12.5)	73.4(11.81)	0.216
Male sex	79(47%)	41(47.8%)	24(51.1%)	13(61.9%)	0.199
Renal disease	15(9.0%)	9(9.3%)	3(6.4%)	3(14.3%)	0.575
Hyperlipidemia	75(44.9%)	20(42.6%)	8(17%)	3(14.3%)	0.753
Hypertension	119(70.8%)	71(73.2%)	31(66%)	17(81%)	0.415
Atrial Fibrillation	69(41.1%)	35(36.1%)	20(42.6%)	14(66.7%)	0.036
Coronary Artery Disease	36(21.4%)	15(15.5%)	12(25.5%)	9(42.9%)	0.017
Baseline NIHSS Mean (SD)	15.4(4.5)	15.7(4.6)	14.2(3.4)	16.6(4.8)	0.070
Baseline ASPECTS Median (IQR)	10 (0)	10(1)	10(1)	10(1)	0.456
Thrombolytics	112(66.7%)	70(71.4%)	26(55.3%)	14(66.7%)	0.651
Balloon Guide Catheter	116 (69%)	70(71.4%)	30(63.8%)	14(66.7%)	0.638

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Angiographic and clinical outcomes based on ICM scores of M1 segment:

Clinical & Angiographic Outcomes	First tertile (56)	Second Tertile (56)	Third Tertile (56)	p-value
FPE eTICI≥2c	29(51.8%)	21(37.5%)	15(26.8%)	0.024
Final eTICI≥2c	49(87.5%)	42(77.8%)	35(66%)	0.026
Modified Rankin Scale 0-2 at 90 days	42(77.8%)	41(74.5%)	29(52.7%)	0.008
Symptomatic Intracranial Hemorrhages at 24 hours	2(3.5%)	3(5.4%)	3(5.4%)	0.877

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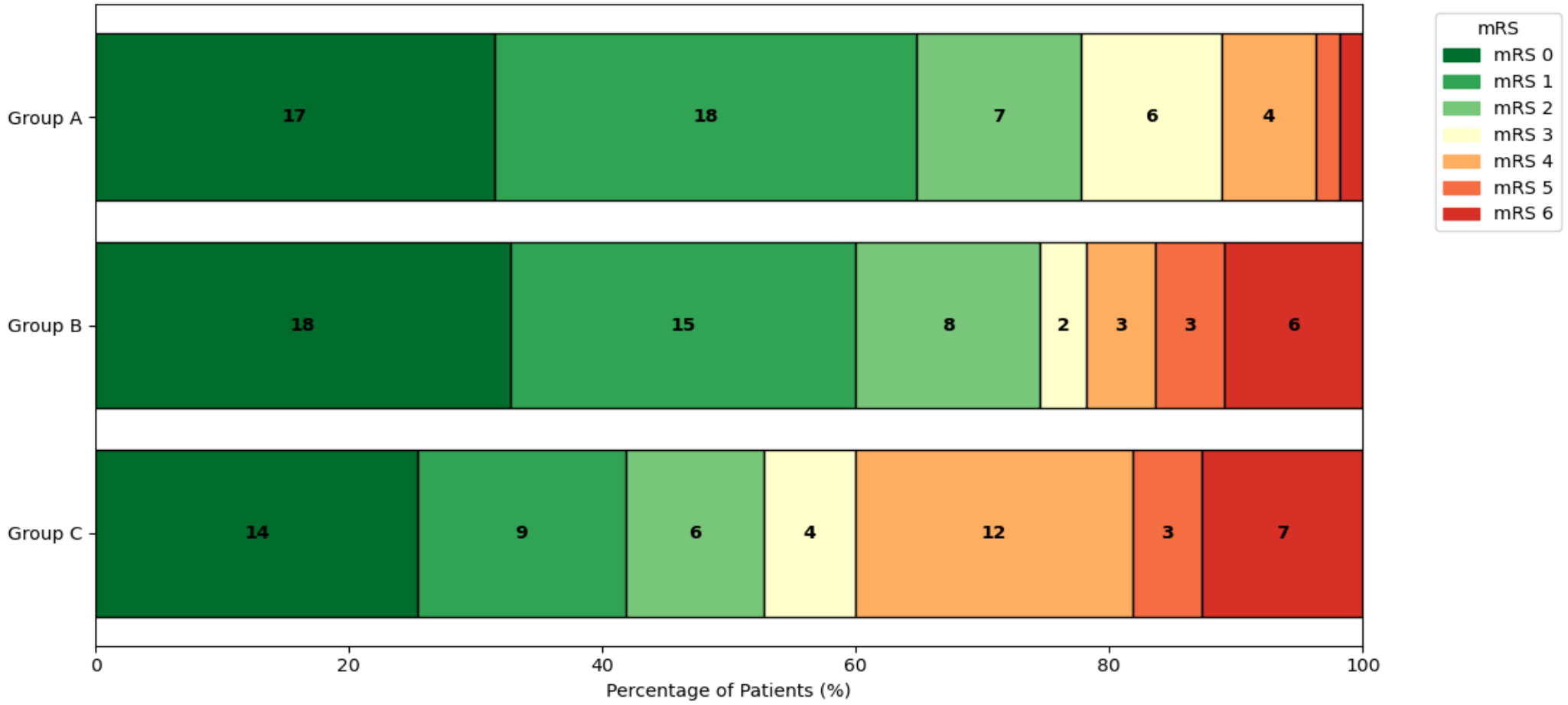
Good functional outcomes based on ICM groups:



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Angiographic and clinical outcomes based on angulation of of M1 segment:

Clinical & Angiographic Outcomes	< 45° (98)	45-90° (47)	>90° (21)	p-value
FPE eTICI≥2c	47(48%)	14(29.8%)	4(19%)	0.014
Final eTICI≥2c	81(84%)	31(68.9%)	12(60%)	0.019
Modified Rankin Scale 0-2 at 90 days	70(73.3%)	29(63%)	11(52.4%)	0.110
Symptomatic Intracranial Hemorrhages at 24 hours	6(6.1%)	2(4.3%)	0	0.480

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Conclusion

In this subgroup analysis of the prospective ARISE II study

1. ***Patients with tortuous M1 segment undergoing mechanical thrombectomy using a stent-retriever device were less likely to achieve excellent reperfusion or first pass effect.***
2. ***Higher ICM scores were correlated with less likelihood of achieving 90-day good functional outcome.***
3. ***No significant impact was observed between vessel tortuosity and symptomatic ICH.***