№ 92

Simultaneous Acute Ischemic Stroke and STEMI: A Dilemma in Emergency Management

Ahmad Shahir bin Ahmad Jalaludin, Balarajan Nagaraja
Emergency & Trauma Department, Hospital Raja Permaisuri Bainun, Ipoh, Perak

INTRODUCTION

Cardio-cerebral infarction (CCI) is a rare but critical emergency involving simultaneous acute ischemic stroke and STEMI, posing complex treatment challenges. This report explores diagnostic and therapeutic dilemmas, emphasizing the need for a multidisciplinary approach to balance reperfusion benefits with hemorrhagic risks.

CASE DESCRIPTION

A 62-year-old male presented with acute left-sided hemiparesis and dysarthria. Neurological examination showed 0/5 motor power in the left upper and lower limbs, with preserved function on the right. His random blood glucose was 9.6 mmol/L, and vitals were stable. A stroke protocol was activated.

Cardiac telemetry revealed ischemic changes, and ECG showed ST-segment elevations in the inferior leads with posterior and right ventricular involvement. Further history disclosed chest discomfort since the previous day, peaking the night before admission. POCUS demonstrated impaired left ventricular function with akinetic inferior and posterior walls. The aortic root was 3.4 cm, with no evidence of dissection. The patient had transient hypotension (lowest BP: 80/56 mmHg), managed with norepinephrine infusion.

The case was referred to neurology and cardiology. Primary PCI was performed, and the patient was admitted to the CCU. He was then discharged well under anticoagulant therapy.

DISCUSSION

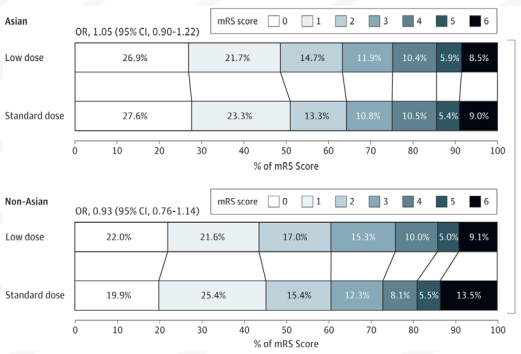
1. Concurrent stroke and STEMI, termed cardio-cerebral infarction (CCI), is ***rare (0.009%–0.3% prevalence)*** and often results from simultaneous thromboembolic events due to atrial fibrillation, plaque rupture, or paradoxical embolism.
2. Management of CCI poses a dilemma. Thrombolysis, standard for both stroke (alteplase 0.9 mg/kg) and STEMI (tenecteplase or streptokinase), carries ***high bleeding risk in stroke patients requiring PCI and dual antiplatelet therapy***. Delaying stroke treatment to prioritize PCI risks worsening cerebral ischemia. Current evidence suggests ***PCI should be prioritized over systemic thrombolysis*** when feasible to minimize hemorrhagic complications.
3. While study suggest a ***lower dose of thrombolysis (alteplase 0.6 mg/kg) is as effective*** as standard with lower risk of complication, mechanical thrombectomy may be considered in selected cases.

Clinical Outcome at 30 Days for Patient Undergone Fibrinolytic VS Angioplasty in MI

Table 3. Clinical Outcome at 30 Days.

Outcome	Referral Hospitals			Invasive-Treatment Centers			All Hospitals		
	Fibrinolysis Group (N=562)	Angioplasty Group (N=567)	P Value	Fibrinolysis Group (N=220)	Angioplasty Group (N=223)	P Value	Fibrinolysis Group (N=782)	Angioplasty Group (N=790)	P Value
	no. (%)			*no. (%)*			*no. (%)*		
Death	48 (8.5)	37 (6.5)	0.20	13 (5.9)	15 (6.7)	0.72	61 (7.8)	52 (6.6)	0.35
Reinfarction	35 (6.2)	11 (1.9)	<0.001	14 (6.4)	2 (0.9)	0.002	49 (6.3)	13 (1.6)	<0.001
Disabling stroke	11 (2.0)	9 (1.6)	0.64	5 (2.3)	0	0.02	16 (2.0)	9 (1.1)	0.15
Composite end point	80 (14.2)	48 (8.5)	0.002	27 (12.3)	15 (6.7)	0.05	107 (13.7)	63 (8.0)	<0.001

Randomized Treatment Effects on Functional Outcome (Alteplase) According to the Modified Rankin Scale at 90 Days, by Ethnicity.



CONCLUSION

- ✓ This case highlights the need for a multidisciplinary approach involving emergency, neurology, cardiology, and critical care teams.
- ✓ Due to limited large-scale studies, individualized management based on patient stability and institutional resources remains crucial. Further research is needed to establish standardized protocols for optimal CCI management.

KEYWORD : Stroke, Myocardial Infractions, Emergency

REFERRENCES

1. Clinical Practice Guidline; Management of Ischemic Stroke, 3rd edition 2020. Malaysian Society of Neurosciences. eISBN 978-967-11469-2-7.
2. Beom Joon Kim, MD, Moon-Ku Han, MD, et al. Low-Versus Standard-Dose Alteplase for Ischemic Strokes Within 4.5 Hours: A Comparative Effectiveness and Safety Study. Americal Heart Association Jurnals. Aug 4 2015. https://doi.org/10.1161/STROKEAHA.115.010180.