Letters to the Editor

Multivessel disease in STEMI patients: a perspective from limited-resource settings

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During the Africa STEMI Live meeting held in Nairobi from 26 to 28 of April 2018, the Great Debate session was on how to approach non-infarct-related (N-IRA) disease in patients who present with STEMI and multivessel disease (MVD) in a limited-resource setting.

Dr Nauman Naseer, professor of cardiology at Akhtar Saeed Medical College and chief of cardiology at Bahria International Hospital, was the protagonist for complete revascularisation of

significant N-IRA disease and Dr Ahmed Suliman, associate professor of cardiology at the University of Khartoum and cardiologist at the National Cardiothoracic Centre in Khartoum, Sudan, argued for infarct artery (IRA)-only revascularisation. The session was moderated by Dr Bernard Gersh, professor of medicine and consultant in the Department of Cardiovascular Diseases at the Mayo Clinic, College of Medicine, USA.

Both debaters agreed that the main focus is to achieve successful revascularisation of the IRA and the restoration of TIMI 3 flow but cited the evidence demonstrating that concomitant multivessel disease is frequently encountered in ST-elevation myocardial infarction (STEMI) patients and is associated with poorer outcomes than those who present with IRA disease only.

Prof Naseer explained the four possible strategies to deal with N-IRA significant disease: intervention within the setting of primary percutaneous intervention; a staged procedure during the index admission and before discharge; a staged procedure after discharge; or treating the N-IRA disease as per stable angina pectoris guidelines. Prof Naseer supported full revascularisation preferably during the same hospital admission, an approach endorsed by the ESC guidelines (class IIa indication).¹ His main arguments were:

- Several randomised trials demonstrated the superiority of complete revascularisation of N-IRA versus IRA only. The largest four trials were PRAMI,² CvLPRIT,³ DANAMI-3 PrIMIULTI⁴ and COMPARE-ACUTE⁵ trial (Table 1). Benefit was driven primarily by the need for repeat revascularisation with only a trend towards a reduction in hard end-points.

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Table 1. Summary of outcomes of major trials comparing complete revascularisation versus IRA-only

Study	Primary outcome	HR (95% CI)	p-value	Secondary outcomes	HR (95% CI)	p-value
PRAMI	CV death, non-fatal MI and refractory angina	0.35 (0.21–0.58)	< 0.001	CV death	0.34 (0.11–1.08)	0.07
				Non-fatal MI	0.32 (0.13–0.75)	0.009
				Repeat revascularisation	0.30 (0.17–0.56)	< 0.001
CvLPRIT	Death, non-fatal MI, heart failure, repeat revascularisation	0.45 (0.24–0.48)	0.009	Death	0.32 (0.06–1.60)	0.14
				Non-fatal MI	0.48 (0.09–2.62)	0.39
				Heart failure	0.43 (0.13–1.39)	0.14
				Repeat revascularisation	0.55 (0.22–1.39)	0.2
DANAMI-3 PrIMIULTI	Death, non-fatal MI and repeat revascularisation	0.56 (0.38–0.83)	0.004	Death	1.4 (0.63–3.0)	0.43
				Non-fatal MI	0.94 (0.47–1.9)	0.87
				Repeat revascularisation	0.31 (0.18–0.53)	< 0.001
COMPARE-ACUTE	Death, non-fatal MI, repeat revascularisation, CVA	0.35 (0.22–0.55)	< 0.001	Death	0.8 (0.25–2.56)	0.7
				Non-fatal MI	0.5 (0.22–1.13)	0.1
				Repeat Revascularisation	0.32 (0.20–0.54)	< 0.001

HR = hazard ratio; CI = confidence interval; CV = cardiovascular; MI = myocardial infarction.

- FFR/iFR (fractional flow reserve/instantaneous free-wave ratio) helps to identify haemodynamically significant disease in non-culprit vessels.
- Many patients in the developing world live far away from cities and the need for urgent repeat revascularisation may translate into a mortality difference due to treatment delay.
- Saving costs initially via the IRA-only approach could incur higher costs at a later stage and this is particularly relevant in the African setting since most patients are liable for 'out-of-pocket' expenses.

The counter argument that the initial strategy should be primary percutaneous coronary intervention (PPCI) of the IRA-only was made by Dr Suliman who presented the evidence cited below:

- All studies did not demonstrate a mortality benefit and event rates were primarily driven by the need for repeat revascularisation.
- All studies cited above performed complete revascularisation on the IRA-only without any attempt to risk-stratify the haemodynamic significance of the lesions in the non-IRA vessels using non-invasive testing. The Prague 13 trial, which excluded patients with angina more than a month before STEMI, was equivocal.
- Patients with left main stem or proximal significant disease in the N-IRA should undergo full revascularisation with PCI or coronary artery bypass grafting (CABG).
- FFR is not available in most cardiac catheterisation laboratories on the African continent.
- On average, one to two extra stents were used in patients undergoing complete revascularisation and extra contrast was used, adding a significant financial burden. Such valuable resources can be shifted to perform more primary angioplasty procedures for STEMI patients.

Dr Suliman concluded by advocating a strategy of culprit-artery only and non-invasive ischaemia-testing for limited-resource settings. At the end of the debate, the audience was almost evenly split when polled regarding the two approaches. Results of ongoing trials are eagerly awaited to shed more light on the subject

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South Africa–Cuba medical training programme: flawed but successful

After more than 20 years, the contentious South Africa–Cuba medical training programme is being downscaled. *Business Day's* Tamar Kahn assessed the situation as the largest-ever cohort of 720 students prepares to return to embark on local clinical training.

More than 20 years ago, Desmond Kegakilwe left Tlakgameng village in rural North West to study medicine in Cuba. According to a *Business Day* report, back then there were few local doctors serving in his community and little hope for young people from underprivileged backgrounds who aspired to a medical career. Today he is the acting clinical manager at Ganyesa District Hospital near Vryburg, and five of the eight doctors employed at the rural facility are Cuban-trained South Africans.

'Obviously it was not an easy route, but rural areas now have permanent South African doctors who can speak the language of their patients. Some of us would never have had the opportunity to study medicine in South Africa,' Kegakilwe says.

The report says South Africa began sending aspirant doctors to train in Cuba in 1997 under a deal that also saw Cuba send its doctors to work in South Africa's rural areas. The South Africans joined students from all over the world taking advantage of the many medical schools created under Fidel Castro's watch to provide personnel for his country's free universal healthcare system.

South Africa recruited bright young people from underprivileged backgrounds and sent them to Cuba on bursaries that required them to work for an equal number of years in the state sector after they had qualified. But, the report says, the programme was contentious from the beginning, as the ANC-led government maintained close political ties to Castro, in recognition of his support for the organisation when it was in exile during apartheid.

continued on page 264...