Exploring CVD solutions

Prof Rhena Delport, Department of Chemical Pathology, University of Pretoria

What is becoming increasingly evident in underdeveloped countries worldwide and also in rural African regions is that the risk profile for cardiovascular disease (CVD), and in particular ischaemic heart disease, is rapidly changing. This necessitates the implementation of drastic preventative and curative treatment measures for non-communicable diseases, as proposed by the World Health Organization's Global CVD Taskforce to curtail the expected increase in acute myocardial infarction (AMI) cases.

Currently grave concern has been expressed about the 'lack of preparedness' of African states' healthcare services, as well as, amongst other constraints, a shortage of physicians and cardiologists, inadequate diagnostic capabilities, and misguided opinions. Some concern has been expressed by Dr Sajidah Kahn, the convener of AfricaPCR 2014, for patients who are dependent on state healthcare, where there purportedly is 'a lack of infrastructure not only in terms of access to catheterisation theatres and coronary care units, but also unavailability of a rapid transport system' as well as 'a paucity of appropriately skilled staff at primary care level to institute appropriate therapy or even interpret ECGs' in more remote regions.

Timely treatment

Reports from AfricaPCR 2014 further highlighted the need for regional strategies to ensure timely treatment of ST elevation myocardial infarction (STEMI) in Africa, preferably by percutaneous coronary intervention (PCI). These strategies would aim to decrease time from onset of symptoms of AMI to first medical contact (FMC) and shortening of FMC-to-device time, depending on the constraints within the different setting.

Time from onset of symptoms of AMI to FMC are mainly determined by patient-related factors, as well as by diagnostic capability and factors relating to the transport of the patient by emergency medical services (EMS) to PCI-capable facilities, while FMC-to-device/reperfusion time depends on EMS transport and factors that affect door-to-balloon time in the case of PCI, or door-to-needle time in the case where administration of thrombolytic is indicated. Direct transport of the patient to a PCI-capable facility is advocated, but if the patient is first admitted to a non-PCI-facility, the door-in-door-out time should ideally be ≤30 minutes before transport to a PCI-capable hospital.

The FMC-to-device time should be ≤90 minutes or ≤120 in case of transfer of the patient for PCI. If PCI cannot be performed within 120 minutes, thrombolytics should be administered with FMC within 30 minutes upon diagnosis of STEMI, either pre-hospital by a trained paramedic/clinic nurse, or, alternatively, by a physician in the nearest emergency room.

The pharmaco-invasive strategy is advocated for the treatment of STEMI in remote areas with no readily access to PCI facilities. Fibrinolytics should be administered as soon as possible, except if contraindicated, followed by transfer to a PCI facility for rescue PCI or angiography with possible PCI as a routine measure. Transfer to a PCI facility, irrespective of the duration of transfer, is advocated for late presenters and patients with cardiogenic shock.

Ideally STEMI should be managed by concerted action between roleplayers, such as central and local government, industry and healthcare workers, to ensure public and healthcare provider education and training and the implementation of logistical strategies that aptly address system-related barriers and constraints to timely and effective diagnosis, transport and most appropriate treatment of STEMI, depending on the available resources.

These initiatives need to be informed by true estimates of prevalence of STEMI and related risk factors and mapping of available resources and needs. Current paucity of data on disease prevalence, general inertia and lack of local leadership will inevitably result in an unbearable burden on health care resources.

Role of interventional cardiologists in Africa

As summarised by Dr Kahn at AfricaPCR 2014, interventional cardiologists working in Africa could ensure that their STEMI patients receive the optimum level of care by:

- Establishing networks of care, at regional and national levels, with uniform policies
- Formulating treatment protocols that are accessible and workable, listing what the best therapy is, but also offering alternatives (e.g. primary PCI as optimal therapy in an urban metropolis, alternately, the pharmaco-invasive strategy using metalyse, and if this is not possible, then timeous administration of streptokinase).
- (Ensuring) continued medical education and support to satellite hospitals/clinics to reinforce adherence to these treatment protocols.
- Being accessible (e.g. telecommunication) to assist with rapid interpretation of electrocardiograms.

International practice guidelines

Although international practice guidelines on STEMI management for non-PCI-capable hospitals and PCI-capable hospitals, EMS and STEMI systems of care may be considered as standard for the development of guidelines for the African context, the example set by other countries with remote areas or other emerging countries are well worth exploring for suitable solutions to regional constraints for timely reperfusion in STEMI.

Possible solutions to problems defined in 2014, reports on setting up a cathlab service in Africa and proposals on managing patients with resource limitations to be presented as highlights of the AfricaPCR 2015 Johannesburg programme, are eagerly awaited as stepping stones in the progress towards optimised early reperfusion of STEMI in Africa.

References available on request. SF