

Out of Hospital Cardiac Arrest in Africa



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Outline

- Burden of Cardiac arrest in Africa
- Successes and challenges in the chain of survival
- EMS development in Africa
- Recommendations



Introduction

- Africa is facing double/triple burden of disease
- Cardiovascular disease is becoming an important cause of morbidity and mortality in Africa.
- Data on SCD are not readily available and there is no information or only poor-quality data



Burden of Cardiac Arrest- community studies

- Cameroon, SCD ($27/388=9.4\%$) out of which $17/27=62.9$ is OHCA
- $27/88.9\%$ witnessed
- Death occurred at night in 37% of cases, including 11% of patients died while asleep.
- only 1 CPR was attempted= 3.4%



Burden of Cardiac Arrest- Autopsy studies in Ethiopia

In Ethiopian study

- Among Hearts showing adequate morphological changes to explain sudden death (n = 63).
- The single most relevant cause of death was coronary artery disease (44 cases=69.8%) followed by excessive myocardial hypertrophy due to post-rheumatic valvular lesions (7 cases).



Nigeria-Autopsy Study

- 79 SCD where there were 59 males (74.7%) and 20 females (25.3%)
- 68 cases (86.1%) were brought dead at scene and 38 (55.1%) of these were apparently healthy
- Hypertensive heart disease was the cause of death in 66 cases (83.5%), of which 20 (30.3%) were previously diagnosed IHD.



OHCA study in Johannesburg

- 510 adult cases of OHCA ,of whom 205 (40%) were selected for resuscitation.
- The median response time was 9 minutes.
- In 153 of the 205 cases (75%) the cause of arrest was presumed to be cardiac.
- 140/205 of CA (68%) were witnessed,
- Bystander CPR was performed in 74/205 cases (36%).
- 47(23%) were shockable rhythm and ROSC occurred in 36 (18%) of resuscitated cases.

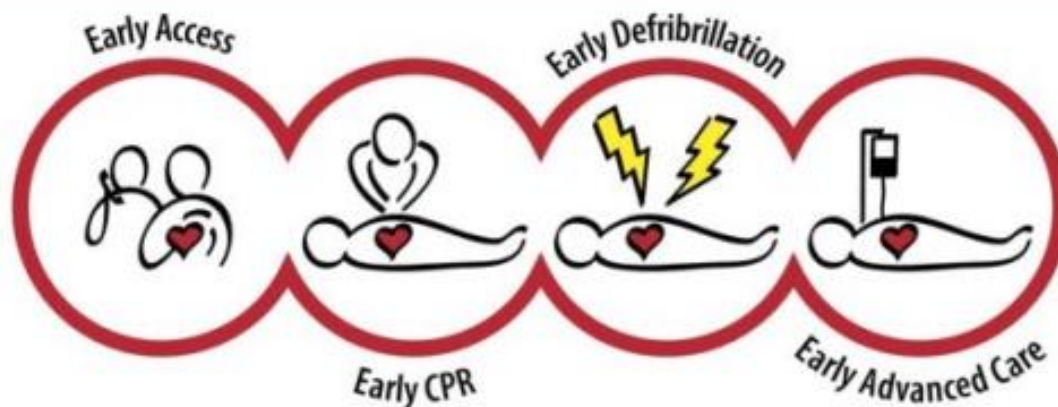


CVD picture in Africa

- Compared to 1990, the number of CVD deaths in SSA increased 81% in 2013
- Currently 9.2% of total deaths is due to CVD
- The burden of IHD remains low relative to other causes of CVD.
- Stroke ,notably hemorrhagic, predominantly by HTN is now a major cause of disability/ premature death.
- The burden of risk factors for atherosclerosis is increasing rapidly in African regions.

Successes and challenges in the chain of survival

1. Early access
2. Early CPR
3. Early Defibrillation
4. Early advanced Care





Access-EMS development in Africa

- It is revealed that less than 9% of Africans are served by EMS in recent Africa wide survey (*Mould-Millman NK, etal*)
 - Barriers to access include:
 - ✓ Absence of emergency transportation,
 - ✓ Healthcare provider deficiencies,
 - ✓ Lack of community knowledge and misperceptions,
 - ✓ Poor national referral system,
 - ✓ Alternative forms of transport, and cost
- Broccoli et al, N. Bosson (Zambia and Gabon)



Fairly advanced EMS - South Africa

- Organized in land, air medical ambulance and rescue teams.
- Ambulance crew training-basic courses like Basic ambulance assistant(BAA) ,intermediate practitioners like Critical care assistant and advanced courses like Emergency practitioners
- The target response time is 15 Minutes in Urban Areas and 40 Minutes in Rural



Emerging EMS : Ethiopia

- Before 2010 ,almost there were no public ambulances, but now there are over 1600.
- Plan to purchase 3000 ambulances to make ratio of 1amb :25,000people,and EMT training is going on.
- Currently ,the Prehospital care is engaged mostly in the transport of laboring mothers .
- In Addis Ababa trauma system is being started and the traffic police is getting first aid training.
- In 4 years strategic plan the FMOH has planned to train 100,000 first responders.



AFEM document on OHEC

- WHO Assembly Resolution 60.22
 - “... a core set of trauma and emergency care services are accessible to all people who need them.”
- African Federation for Emergency Medicine’s (AFEM) Out-of-Hospital Emergency Care (OHEC) Committee
- In Nov 2013, AFEM in a consensus process, described a two-tier system for African OHEC:
 - Tier-1 being first responder and community-based
 - Tier-2 described formal prehospital services and emergency medical services (EMS).



Knowledge and Skills in CPR

- CPR training and refreshment is not regularly conducted.
- Registered nurses in Botswana's two participating hospitals had inadequate CPR knowledge and skills (L. Rajeswaran ,etal)
- Doctors ' knowledge of resuscitation was poor (The mean total score = 35.1%) : South African Family practice V 54,No 5



EMS system

- In most of the areas where there is EMS it basic level
- In few countries like South Africa there are combinations of basic and advanced system.
- I bigger cities the average ambulance response time is about 15',no such standards in many counties.
- Will AED brings revolution of early defibrillation?



Will development of academic Programs and Societies assist OHCA?

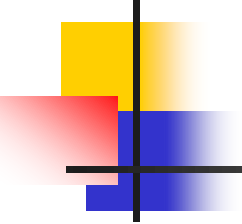
In Africa recently,

- EM programs, prehospital care trainings and 1st responder programs are growing.
- Continental and national EM societies like AFEM are growing.
- Some countries also have resuscitation council.
- Ministry of health in many countries have adopted EM and first responder programs as essential.



Recommendation

- Research to identify the burden, trend and distribution of SCD .
- Prevention strategies through Public education
- Professionals and interested groups in resuscitation and emergency care
- Appropriate skills by professionals and 1st
- Community involvement and Development of effective tier Emergency systems, including emergency care in health facilities. .



- Thank you.