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Recommended Citation

Wachira, B. (2013). Uchunguzi (Journal Watch/Montre de Journal) June 2013. *African Journal of Emergency Medicine*, 3(2), 85-87.

Available at: http://ecommons.aku.edu/eastafrica_fhs_mc_fam_med/19



African Federation for Emergency Medicine
African Journal of Emergency Medicine

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Uchunguzi (Journal Watch/*Montre de Journal*)

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Received 29 March 2013; accepted 31 March 2013

Available online 22 April 2013

Uchunguzi means investigation in Swahili and provides a summary of some of the most recent international literature as presented in other leading journals, but with an emphasis on what is relevant to our continent.

Surviving severe sepsis and septic shock with new guidelines

Sepsis is a systemic, deleterious host response to infection leading to severe sepsis (acute organ dysfunction secondary to documented or suspected infection) and septic shock (severe sepsis plus hypotension not reversed with fluid resuscitation). Similar to polytrauma, acute myocardial infarction, or stroke, the speed and appropriateness of therapy administered in the first 6 h after severe sepsis develops are likely to influence outcome. The recently published 2012 International guidelines for management of severe sepsis and septic shock are evidence-based recommendations regarding the acute management of sepsis and septic shock which are the foundation of improved outcomes for this important group of critically ill patients. Some of the key recommendations and suggestions include; an initial minimum fluid challenge of 30 mL/kg of crystalloids in patients with sepsis-induced tissue hypoperfusion and suspicion of hypovolemia within the first 3 h of recognition; administration of broad-spectrum antimicrobial therapy within 1 h of

recognition of septic shock and severe sepsis; norepinephrine as the first-choice vasopressor to maintain a mean arterial pressure of ≥ 65 mmHg; epinephrine may potentially be substituted or added to norepinephrine to maintain adequate blood pressure. Avoid intravenous hydrocortisone in adults if adequate fluid resuscitation and vasopressor therapy are able to restore hemodynamic stability. Recommendations specific to paediatric severe sepsis include: therapy with face mask oxygen, high flow nasal cannula oxygen, or nasopharyngeal continuous positive end expiratory pressure (PEEP) in the presence of respiratory distress and hypoxemia; use of physical examination therapeutic endpoints such as capillary refill; for septic shock associated with hypovolemia, the use of crystalloids or albumin to deliver a bolus of 20 mL/kg of crystalloids (or albumin equivalent) over 5–10 min; more common use of inotropes and vasodilators for low cardiac output septic shock associated with elevated systemic vascular resistance; and use of hydrocortisone only in children with suspected or proven “absolute” adrenal insufficiency.

Surviving sepsis campaign: International guidelines for management of severe sepsis and septic shock: 2012. *Crit Care Med* 2013;41(2):580–637.

Stroke guidelines revised

The global burden of stroke is on the increase. Though there are multifactorial factors that have been shown to reduce this burden, improved prevention and improved care within the first hours of acute stroke have been shown to greatly reduce this growing burden. One of the goals of these guidelines is specifically to deal with acute diagnosis, stabilization, and medical and surgical treatments of acute ischemic stroke. Some of the recommendations include; patients should be transported rapidly to the closest most appropriate institution that

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Peer review under responsibility of African Federation for Emergency Medicine.



provides emergency stroke care; comprehensive stroke centers should be developed with a designated acute stroke team; an organized protocol for the emergency evaluation of patients with suspected stroke is recommended; patients with stroke should have a careful clinical assessment, including neurological examination; the use of a stroke rating scale, preferably the National Institutes of Health Stroke Scale (NIHSS), is recommended; either non-contrast-enhanced CT or MRI is recommended and should be interpreted within 45 min of patient's arrival in the emergency department by a physician with expertise in reading CT and MRI studies of the brain parenchyma; evaluation and start of fibrinolytic treatment should be within 60 min of the patient's arrival in an emergency department if meeting the eligibility criteria; the eligibility criteria for intravenous rtPA for patients who can be treated in the time period of 3–4.5 h after stroke onset are similar to those for people treated at earlier time periods within 3 h, with the following additional exclusion criteria: patients > 80 years old, those taking oral anticoagulants regardless of international normalized ratio, those with a baseline NIHSS score > 25, those with imaging evidence of ischemic injury involving more than one third of the middle cerebral artery territory, or those with a history of both stroke and diabetes mellitus.

Guidelines for the early management of patients with acute ischemic stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2013;44(3):870–947.

A wake up call for major incident management in Kenya

In health service terms, a major incident can be defined as any incident where the location, number, severity, or type of live casualties requires extraordinary resources. Since 2000, there have been 2518 major incidents in 56 countries in Africa; 113 have been in Kenya. At least four major incidents have occurred in Kenya each year in the last 12 years. The repetitive nature of both the natural and manmade incidents recently, with a high number of deaths and injuries, suggests that Kenya is still not adequately prepared to handle major incidents. This paper identifies the epidemiology and incidence of some of Kenya's major incidents for the period 2000–2012 with an aim of informing the training and development of Emergency Medical Services and Fire services in Kenya, along with the development of integrated Command and Control structures which will greatly enhance the country's preparedness and response to major incidents.

Major Incidents in Kenya: the Case for Emergency Services Development and Training. *Prehosp Disaster Med* 2013;28(2):1–4.

Choosing life and death in mass casualty disasters

Mass burns casualty disasters occur rarely and are difficult to manage. Management of these cases is often further complicated in poorly resourced settings found in the developing world as triage decisions often have to be made early. Many healthcare providers are inexperienced in coping with such an incident, and when disaster strikes, particularly in rural areas, clinicians frequently lack the essential basic support and resources they need. It is not unusual, especially in the developing world, for a clinician to find that he or she is the sole healthcare provider for the entire community. Therefore, this means that an appropriate triage of patients by the doctor at initial contact

becomes even more crucial than ever, but nevertheless remains a challenging skill to master. While every effort is made by all involved to deliver the best care with the available resources, in some cases it proves impossible to provide adequate care for every patient who is injured in the incident, without having to prioritise some patients over others acknowledging that not every victim will survive and the difficult decisions that have to be made with potential ethical dilemmas. This case provides an illustration of major incident management in a resource limited setting and provides a greater understanding and awareness of the impact of the decision making process of patients, their families, and any possible consequences.

Mass burns casualties: ethical dilemmas. *Online J Health Ethics* 2012;8(2).

Choosing wisely

Choosing Wisely® is an initiative of the American Board of Internal Medicine Foundation to help physicians and patients engage in conversations to reduce the overuse of tests and procedures. With the rising cost of healthcare and resource limitation especially in low and middle income countries, conscientious use of tests and procedures will go a long way in improving healthcare systems in these countries within the current available resources. Through this initiative, lists representing specific evidence-based recommendations physicians and patients should discuss have been developed to help make wise decisions about the most appropriate care based on their individual situation. Some of the recommendations include:

- Antibiotics should not be used for apparent viral respiratory illnesses (sinusitis, pharyngitis, bronchitis), uncomplicated acute external otitis, adenoviral conjunctivitis (pink eye).
- Do not order sinus computed tomography (CT) for uncomplicated acute rhinosinusitis.
- Do not diagnose or manage asthma without spirometry. Do not order chest radiographs in patients with uncomplicated asthma.
- Do not do imaging for low back pain within the first six weeks, unless red flags are present.
- Do not obtain brain imaging studies (CT or MRI) for sudden hearing loss, in the evaluation of simple syncope and a normal neurological examination, and for uncomplicated headaches.
- In patients with low pretest probability of venous thromboembolism (VTE), obtain a high-sensitive D-dimer measurement as the initial diagnostic test; do not obtain imaging studies as the initial diagnostic test unless moderate or high pre-test probability of PE.
- Avoid using a computed tomography angiogram to diagnose pulmonary embolism in young women with a normal chest radiograph; consider a radionuclide lung study (“V/Q study”) instead.
- Avoid nonsteroidal anti-inflammatory drugs (NSAIDs) in individuals with hypertension or heart failure or CKD of all causes, including diabetes.

Choosing wisely. Five things physicians and patients should question. < http://www.choosingwisely.org/wp-content/uploads/2012/09/Choosing-Wisely-Master-List_LQ.pdf > [last accessed 26 March 2013].

X-ray scoring system for pulmonary tuberculosis

Despite the fact that tuberculosis (TB) is curable, it remains a major problem globally. Central to TB control programmes is the identification of sputum-positive patients. But smear microscopy has a sensitivity less than 50% among patients with active pulmonary TB who are co-infected with HIV, and in the HIV era, especially in some countries where more than 70% of patients are HIV-positive, additional methods are required for identifying patients requiring treatment. This study done in Cape Town, South Africa set out to develop a weighted radiographic scoring system to assist the interpretation of chest radiographic changes and aid the diagnosis of active pulmonary tuberculosis in the clinical setting. The radiographic score parameters included; large (> 1 cm) upper lobe opacity – 2, a cavity, any location – 2, unilateral pleural effusion – 1, and adenopathy in any location – 2. The positive likelihood ratio (LR+) for the test at a cut-off of ≥ 2 was 2.37 and the negative likelihood ratio (LR–) was 0.23. In sputum-smear negative patients, at the same cut-off, the test had a good rule-out value (NPV 93.4%, 95% CI 89.4, 96.3). The score had a better negative predictive value for HIV-uninfected individuals (92.1, 95% CI 86.3, 96) than in HIV-infected individuals (86.4, 95% CI 75, 94), although the difference was not statistically significant ($p = 0.21$). Further validation studies are now necessary to confirm these findings.

Development of a simple reliable radiographic scoring system to aid the diagnosis of pulmonary tuberculosis. *PLoS ONE* 2013;8(1):e54235.

Steps to improve ED care in Nigeria

The emergency department of any hospital is an important entry point of critically ill patients. The initial management of these patients is often challenging, and for valuable lives to be saved, the infrastructure and manpower should be up to date. In this prospective observational study carried out in a tertiary health centre South–south of Nigeria, the authors looked at the 72 h mortality for patients admitted through the emergency department. Their estimated death rate of 8.6% was high even by the standard of the developing countries. Road traffic accidents and assault dominated the most common cause of trauma deaths and cardiovascular disorders, end organ failure (liver/kidneys), bacterial infections and gastrointestinal disorders dominated the common causes of non-trauma deaths. The high death rate was multi-factorial including systemic deficiencies such as the lack of a trauma system, pre-hospital care; and facilities/manpower for investigat-

ing, monitoring, and intervention. The patient related factors were; high poverty level and late presentation at the definitive care centre. The third factor was the role played by chemist operators, delayed referral system in primary, secondary and private health institutions and fourthly, the possible negative role by traditional healers and superstition which are not often obvious. This information is definitely vital in providing essential information needed for hospital policy formulation, staff and infrastructural development, and public education.

Epidemiology of death in the emergency department of a tertiary health centre south–south of Nigeria. *Afr Health Sci* 2012;12(4):530–7.

Acute asthma guidelines 2013

Acute asthma attacks (asthma exacerbations) are increasing episodes of shortness of breath, cough, wheezing or chest tightness associated with a decrease in airflow and requiring emergency room treatment or admission to hospital. Surveys indicate that the majority of acute asthma patients in developed and developing countries do not receive optimal care and are therefore not well controlled. The South African Thoracic Society has recently published updated guidelines for the management of acute asthma to curb the increasing prevalence of asthma worldwide. The goals of treatment are to relieve hypoxaemia and airflow obstruction as quickly as possible, restore lung function, and provide a suitable plan to avoid relapse. Severe exacerbations are potentially life-threatening and their treatment requires baseline assessment of severity, close monitoring, and frequent reassessment using objective measures of lung function (PEF) and oxygen saturation. Patients at high risk of asthma-related death require particular attention. First-line therapy consists of oxygen supplementation, repeated administration of inhaled short-acting bronchodilators (beta-2-agonists and ipratropium bromide), and early systemic glucocorticosteroids. Intravenous magnesium sulphate and aminophylline are second- and third-line treatment strategies, respectively, for poorly responding patients. Intensive care is indicated for severe asthma that is not responsive to first-line treatment. Antibiotics are only indicated when there are definite features of bacterial infection. Factors that precipitated the acute asthma episode should be identified and preventive measures implemented.

Guideline for the management of acute asthma in adults: 2013 update. *S Afr Med J* 2012;103(3):189–98.