SSMJ South Sudan Medical Journal

Volume 5. Number 2. May 2012 www.southsudanmedicaljournal.com

Safer caesarean sections at Juba Teaching Hospital

Post-conflict mental health (Part 2)

Traumatic brain injuries

TB epidemiology

Heart attacks

ABCDE Triage

CONTENTS

To receive notices of new editions, send an email to admin@southernsudanmedicaljournal.com

Cover photo - *Gideon, anaesthetic medical assistant at Juba Teaching Hospital, receives his books (credit Clare Attwood).*

SSMJ South Sudan Medical Journal

Volume 5. No. 2. www.southsudanmedicaljournal.com

A Publication of the South Sudan Doctors' Association

The South Sudan Medical Journal is a quarterly publication intended for Healthcare Professionals, both those working in the South Sudan and those in other parts of the world seeking information on health in South Sudan. The Journal is published in mid-February, May, August and November.

Reviewers are listed on the website

How can *you* help *SSMJ*?

Eluzai Abe Hakim, David Attwood, James Ayrton and Rachel Ayrton

Trustees of the South Sudan Medical Journal charity

If you are reading this you know that 'SSMJ' is a journal and a website. But you may not realize that SSMJ is also a charity.

The journal is overseen by the Editor-in-Chief, Edward Luka, supported by the Editorial Board and a team of Reviewers under the Chief Reviewer, David Tibbutt. However it would not be possible to produce this journal without the many people who contribute excellent articles and news both from within and outside South Sudan. We thank you all – please continue sending us your materials.

Our website has been set up and is managed by our IT team under James Ayrton. This is evolving over time and already we are pleased that on it you will find reports from South Sudan, a blog and e-learning zone (set up by David Attwood) – as well as a searchable archive of the journal. We also have 'Ask SSMJ', a service by which you can send medical questions to be answered by relevant experts.

SSMJ belongs above all to its readers and users. For us to progress and become an even better journal and website we need your input.

Underpinning the journal and website is the SSMJ charity with four Trustees based in UK. It is through the charity that SSMJ has raised most of the funds needed to produce the journal, maintain the website and develop the e-learning zone Funding for printing copies of the journal has, up to now, come mainly from the South Sudan Doctors' Association.

How can you help SSMJ?

SSMJ belongs above all to its readers and users. For us to progress and become an even better journal and website we need your input. So what can you do? Here are some ideas – but let us know if you have more.

You can:

- Send us articles, case studies and news to publish in the journal
- Tell us of key South Sudan reports that we can upload on the website
- Visit the website and tell us what you like and how we can improve it
- Read the journal and tell us what you like or don't like, what you want more of
- Suggest topics for new articles
- If you get a hard/print copy of the journal share it with colleagues
- Send us names of colleagues to add to our mailing list
- Donate to the SSMJ charity – you can do this via the website

We look forward to hearing from you. You can contact us by emailing admin@southernsudanmedicaljournal.com

JubaLink - linking the Isle of Wight, Juba Teaching Hospital and South Sudan - has a new website - see www.jubalink.org.uk

Post-conflict mental health in South Sudan: Overview of common psychiatric disorders
Part 2: Anxiety and substance abuse

Maithri Ameresekere[a], MD, MSc and David C. Henderson[a], MD

Introduction

Mental illness has a profound and often underestimated impact on the health and functioning of individuals and communities in post-conflict societies. Part I of this series provided an overview of depression and post-traumatic stress disorder (PTSD); Part II focuses on anxiety and substance use, including alcohol withdrawal. Anxiety, substance abuse, and substance abuse-related complications such as alcohol withdrawal are frequently seen in post-conflict settings (1). Alcohol and drug abuse is a growing concern in South Sudan as increasing social freedom and access to alcohol and drugs bring increased risk for excessive use and harmful consequences (2). As a result, health care providers must have the knowledge to screen, diagnose, and treat anxiety, substance abuse, and alcohol withdrawal.

This article provides:

- Signs and symptoms for each condition, screening questions to assess risk, and treatment suggestions for anxiety, substance abuse, and alcohol withdrawal.
- Broad recommendations to strengthen mental health service provision for common mental disorders including depression, PTSD, anxiety, and substance abuse.

Anxiety (Excessive worry)

While worry is normal in certain situations, it becomes problematic when the worrying is continuous, out of proportion to what is actually happening in a person's life, or interferes with normal activities (3). Depression and anxiety often occur together so it is important to ask questions about both excessive worry and depressed mood. Someone has clinical anxiety when they have excessive worry most of the day, nearly ever day for at least 6 months, near constant worry that causes significant impairment in important areas of life, worry that is difficult to control and at least 3 of the following additional symptoms (Tables 1 and 2).

a The Chester M. Pierce, MD Division of Global Psychiatry, Massachusetts General Hospital, Boston, and Harvard Medical School, 25 Shattuck Street, Boston, USA. mameresekere@partners.org

Substance abuse

Excessive use of alcohol and drugs can lead to neglect of personal responsibilities, legal problems, conflict with loved ones, and danger to personal health and safety. Patients with untreated depression, anxiety, or post-traumatic stress disorder may use alcohol or drugs as a means to cope or treat their symptoms. However, alcohol or drugs may actually worsen these symptoms. Someone is abusing alcohol and drugs when one or more of the following symptoms occur in a 12-month period (Table 3).

Substance Dependence

Prolonged and excessive use of alcohol and drugs can cause the body to become physically dependent on the substance. Over the long term, physical dependence can result in physical harm, medical illness, behavioral problems, and damage to personal and professional relationships. Additionally, stopping alcohol or drugs abruptly after excessive and chronic use can cause uncomfortable physical symptoms of withdrawal. Symptoms like sad mood, poor sleep, anxiety, irritability, nausea, agitation, fast heart rate, and high blood pressure are common symptoms when withdrawing from alcohol

Table 1. Diagnostic Criteria for Anxiety (4)

Symptoms	Continuous nervousness/worry/stress for at least 6 months + 3 or more of the symptoms below: • Restlessness or feeling like something bad is going to happen • Being easily tired • Difficulty concentrating or focusing • Irritability • Muscle tension • Sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep)

Table 2. Suggested Screening Questions for Anxiety (3)

Anxiety Risk	1. Have you been continuously worried or stressed for a long period of time? 2. Would you say that being stressed or worried prevents you from performing your daily activities?

OR drugs. In the case of alcohol withdrawal, abruptly stopping alcohol after heavy use can cause seizures and delirium. Due to the life-threatening nature of alcohol withdrawal, we focus on the diagnostic criteria for alcohol dependence. Someone is dependent on alcohol when three or more of the following symptoms occur in a 12-month period (Table 4).

Screening for substance abuse and dependence: Questions related to substance abuse can be sensitive, and patients may deny or lessen their reporting of alcohol or drug use to health care workers. A non-judgmental attitude encourages people to report their symptoms honestly. When concerned about alcohol abuse and dependence, you can use the AUDIT (Alcohol Use Disorders Identification Test) Questionnaire developed by the World Health Organization to assess risk (5). Points are assigned to each answer and then added up. A score of more than 8 suggests a serious alcohol problem (Table 5).

Screening for alcohol withdrawal: If you are concerned that a patient is withdrawing from alcohol it is important to measure their symptoms to help you decide the amount and frequency of medication needed to avoid seizures and delirium. The Clinical Institute Withdrawal Assessment for Alcohol (CIWA) scale is a useful tool to measure the severity of alcohol withdrawal symptoms. The CIWA scale measures 10 categories of symptoms, with a range of scores from 0 through 4 or 0 through 7 in each category. The health care worker assigns a number

Table 3. Diagnostic Criteria for Substance Abuse (4)

Symptoms	One or more of the following symptoms in a 12-month period: • Recurrent alcohol or drug use resulting in a failure to fulfill obligations at work, school, or home (e.g. repeated absences or poor work performance; neglect of children or household). • Recurrent alcohol or drug use in situations in which it is physically dangerous (e.g. driving a car or operating a machine). • Recurrent alcohol or drug related legal problems (e.g. arrests for alcohol-related violence). • Continued alcohol or drug use despite social or personal problems caused or made worse by their use (e.g. arguments with spouse or physical fights).

Table 4. Diagnostic Criteria for Alcohol Dependence (4)

Symptoms	3 or more of the following symptoms in a 12-month period: • Tolerance, defined by either: (a) Need for increased amounts of alcohol to have the desired effect (b) Decreased effect with continued use of the same amount of alcohol • Withdrawal, as defined by either of the following: (a) Withdrawal syndrome occurs when you stop drinking alcohol (or decrease use) after heavy and chronic drinking. Withdrawal is defined by: Two (or more) of the following occurring several hours to a few days after stopping heavy or chronic drinking: 1. Autonomic hyperactivity (e.g. sweating or pulse rate greater than 100) 2. Increased hand tremor 3. Inability to sleep 4. Nausea or vomiting 5. Transient visual, auditory, or tactile hallucinations 6. Increased agitation or activity 7. Anxiety 8. Seizures (b) Alcohol consumption to relieve or avoid withdrawal symptoms • Increasing use of alcohol in larger amounts or over longer periods of time than originally intended • Desire to stop drinking or unsuccessful efforts to cut down or control alcohol use • Increasing time spent buying, consuming, or recovering from effects of alcohol abuse • Performing poorly or giving up important social, occupational, or personal activities because of alcohol use • Continued alcohol use despite physical or psychological problems that are caused or worsened by alcohol (e.g. continued drinking despite knowing that an ulcer is made worse by drinking alcohol)

Table 5. Screening for Alcohol Abuse/Dependence (5)

1) How often do you have a drink containing alcohol? 0=Never 1=Monthly or Less 2=Two to Four Times/Month 3=Two to Three Times/ Week 4=Four+ Times/ Week	2) How many drinks containing alcohol do you have on a typical day when you are drinking? 0=None 1=One or Two 2=Three or Four 3=Five or Six 4=Seven to Nine 5=Ten or More
3) How often do you have six or more drinks on one occasion? 0=Never 1=Less than Monthly 2=Monthly 3=Weekly 4=Daily or Almost Daily	4) How often during the last year have you found that you were unable to stop drinking once you had started? 0=Never 1=Less than Monthly 2=Monthly 3=Weekly 4=Daily or Almost Daily
5) How often during the last year have you failed to do what was normally expected from you because of drinking? 0=Never 1=Less than Monthly 2=Monthly 3=Weekly 4=Daily or Almost Daily	6) How often during the last year have you needed a first drink in the morning to get going after a heavy drinking session? 0=Never 1=Less than Monthly 2=Monthly 3=Weekly 4=Daily or Almost Daily
7) How often during the last year have you had a feeling of guilt or remorse after drinking? 0=Never 1=Less than Monthly 2=Monthly 3=Weekly 4=Daily or Almost Daily	8) How often during the last year have you been unable to remember the night before because you had been drinking? 0=Never 1=Less than Monthly 2=Monthly 3=Weekly 4=Daily or Almost Daily
9) Have you or someone else been injured as the result of your drinking? 0=Never 2=Yes, but not in the last year 4=Yes, during the last year	10) Has a relative, doctor, friend, or health professional been concerned about your drinking or suggested you cut down? 0=Never 2=Yes, but not in the last year 4=Yes, during the last year

for severity within each symptom category. Symptoms that are assessed include nausea, vomiting, tremor, sweats, headache, anxiety, agitation, tactile, auditory and visual disturbances, and orientation. Based on the symptom scale, the numbers are added up to obtain one score that indicates the severity of alcohol withdrawal. The maximum score is 67. Minimal-to-mild withdrawal symptoms result in a total score of less than 8; moderate withdrawal symptoms has a total score of 8 to15; and severe withdrawal symptoms has a total score of more than 15 (6). High scores are predictive of seizures and delirium. The CIWA scale can be found in Figure 1 at the following link (7): http://www.aafp.org/afp/2004/0315/p1443.html

Treatment Approach for Patients with Anxiety and Substance Abuse/Dependence

As some medical conditions can present with or mimic psychiatric symptoms, it is important to exclude common medical causes like infection (malaria, typhoid, HIV), medication reactions, and toxic/metabolic or endocrine abnormalities before making a diagnosis of anxiety, substance abuse, or alcohol withdrawal (8).

Substance Abuse Treatment

Community and Psychosocial Interventions: Social support in the form of religious groups, friends, family, and tribal structures may help patients with substance abuse problems stop drinking alcohol and doing drugs. Health care providers can help their patients stop abusing alcohol and drugs by:

- Trying to understand what motivates someone to drink or do drugs.
- Treating underlying psychiatric illness like depression, anxiety, or PTSD. (People may be abusing alcohol or drugs to ease suffering associated with these

conditions)

- Assessing whether someone is ready to stop drinking or doing drugs and providing help if they are ready
- Encouraging abstinence from drinking or doing drugs without judging their behavior
- Providing emotional and family support.

Alcohol Withdrawal Treatment

Alcohol withdrawal is a life-threatening illness with the potential for seizures, delirium, and death if untreated. See table 8 for possible treatment strategies.

Conclusion

Advocacy, training, and research are needed to identify the scope of mental illness and provide culturally-meaningful interventions to treat common mental disorders in South Sudan. Future steps to strengthen mental health services in South Sudan include:

ADVOCACY: Reducing stigma associated with mental disorders, creating awareness about mental illness, and advocating for appropriate mental health services are necessary steps to reduce the burden of psychiatric disease. Advocacy should occur at multiple levels including:

o Lobbying the government to create a comprehensive national mental health policy that prioritizes mental health interventions that are mindful of the cultural context and meet the needs of the population.

o Lobbying the Ministry of Health to expand psychiatric drug coverage. Currently there is a limited selection of drugs available to treat common mental disorders. Amitriptyline is one of the few anti-depressants that is widely available; however, fluoxetine (also available on the WHO formulary) is safer and easier to administer and can be used to treat the debilitating effects of depression, anxiety and PTSD.

o Educating the public in an effort to reduce stigma and create awareness about signs and symptoms of mental illness. Early detection and treatment of psychiatric illness will serve to reduce the damaging personal, social, and public health consequences of untreated mental disorders.

TRAINING: Health care providers at all levels should be trained to screen, diagnose, treat, and seek help for individuals suffering from depression, PTSD, anxiety, substance abuse, or withdrawal. Training is particularly important for:

o General practitioners who are exposed to a high prevalence of mental illness in their everyday practice.

Table 6. Treatment Algorithm: Anxiety (9)

- EVALUATE presence of symptoms according to diagnostic criteria
- EXCLUDE common medical disorders that cause anxiety
- CONSIDER the differential diagnoses based on symptoms
- START Medication/Psychosocial Intervention
- ASSESS RESPONSE: See the patient back in clinic > assess presence of symptoms and response to medication.
  a. If complete resolution of symptoms > continue treatment at current dose
  b. If partial or no improvement > increase dose based on guidelines and reassess symptoms
- REASSESS RESPONSE frequently at the beginning of treatment:
  a. If complete resolution of symptoms > continue medication at therapeutic dose
  b. If no response > seek consultation with mental health expert by any means necessary

Table 7: Anxiety Treatment (9)

Medications	Starting Dose	Effective Dose Range
Fluoxetine (Clinical response may be delayed)	10 – 20 mg/day	20 – 80mg/day In the morning
Diazepam SECOND LINE High abuse potential	2 - 5 mg/day	2 - 40 mg/day At night or in divided doses
- Fluoxetine is safer and less addictive than diazepam and preferred if available - If symptoms improve > continue fluoxetine for at least 4-6 months - Taper dose gradually as stopping abruptly can cause withdrawal syndrome - If symptoms gradually reappear after stopping treatment > Restart therapy and continue indefinitely		

Table 8. Treatment Algorithm for Alcohol Withdrawal (10)

- EVALUATE presence of withdrawal symptoms and day of last drink
- EXCLUDE common medical disorders that cause withdrawal symptoms
- MEASURE SYMPTOMS using the CIWA scale
  - **CIWA score < 8:** Psychosocial interventions for substance abuse
  - **CIWA score 8 – 15:** Psychosocial intervention + Outpatient alcohol detoxification:
    Give - Thiamine 100 mg orally/day
    Consider folic acid and multivitamin if available
    Give Diazepam 10 - 20 mg every 6 hours for 4 doses, then 5-10 mg every 6 hours for 8 doses
  - **CIWA score of >15:** Consider admission to the hospital for detoxification
    - Give Thiamine 200 mg IM/IV x 1 (then 200mg orally twice daily), Folic acid 1 mg orally daily, and a multivitamin orally daily
    - Measure CIWA every 1 - 2 hours
      * If CIWA > 10 : GIVE Diazepam 10 - 20mg orally
      * Re-measure CIWA 1 hour later (wake up patients to assess withdrawal even if sleeping) if CIWA >10: Give Diazepam 20mg
      * Give Diazepam 10 - 20mg every 1 – 2 hours based on symptoms measured by CIWA score
    - Reassess response every hour at beginning of treatment:
      * If the patient consistently has complete resolution of symptoms > begin to reduce frequency of diazepam slowly over several days
      * If no improvement in symptoms with Diazepam, seizures, delirium or CIWA persistently >15 for several hours despite appropriate treatment > seek consultation with expert by any means necessary (including phone or internet).

* Monitor closely for respiratory depression when treating alcohol withdrawal with Diazepam. Fluid resuscitation and correction of electrolyte abnormalities are important components of alcohol withdrawal management.

o Medical graduates/students who should be encouraged to pursue further training in mental health. Psychiatrists need to be multi-talented, able to differentiate mental illness from medical illness, manage psychiatric medications and their side effects, and make patients feel comfortable about revealing deeply personal fears and concerns. It is critically important to invest in the mental health workforce of South Sudan in order to meet the mental health needs of an expanding population exposed to significant armed conflict and trauma. Additionally, psychiatrists will be an important source of expertise and referral for the severely mentally ill and for patients who do not respond to standard treatments.

RESEARCH: Currently, there is limited mental health data from South Sudan. Scientifically-rigorous information on prevalence of mental disorders, culturally-validated screening and diagnostic tools for common mental disorders, and effective traditional and non-traditional mental health interventions are needed to provide effective, culturally-specific care to the citizens of South Sudan.

References:

1. de Jong JT, Komproe IH, Van Ommeren M. 2003 Common mental disorders in postconflict settings *Lancet*; 361(9375): 2128-30
2. King. 2006 Alcohol a Growing Problem in South Sudan *Voice of America*
3. Patel V. 2008 Where there is no psychiatrist: a mental health care manual. London: Gaskell
4. American Psychiatric Association. 2000 American Psychiatric Association. Task Force on DSM-IV. Diagnostic and statistical manual of mental disorders: DSM-IV-TR. 4th ed. Washington, DC: American Psychiatric Association
5. Bohn MJ, Babor TF, Kranzler HR 1995 The Alcohol Use Disorders Identification Test (AUDIT): validation of a screening instrument for use in medical settings *J Stud Alcohol*; 56(4): 423-32
6. Kosten TR, O'Connor PG 2003 Management of drug and alcohol withdrawal *N Engl J Med*; 348(18): 1786-95
7. Bayard M, McIntyre J, Hill KR, Woodside J, Jr. 2004 Alcohol withdrawal syndrome *Am Fam Physician*; 69(6): 1443-50
8. Williams ER, Shepherd SM. 2000 Medical clearance of psychiatric patients *Emerg Med Clin North Am*; 18(2): 185-98, vii
9. Henderson DC. undated. Statewide Network of Local Care to Survivors of Torture: Psychopharmacology Introduction. Powerpoint. Boston Harvard Program on Refugee Trauma
10. Asplund CA, Aaronson JW, Aaronson HE. 2004 3 regimens for alcohol withdrawal and detoxification *J Fam Pract*; 53(7): 545-54

Is myocardial infarction common in the South Sudan?

Ronald Woro[a], MBBS, MRCP (UK)

Introduction

It is generally believed that ischaemic heart disease and the serious consequence of myocardial infarction is uncommon in indigenous South Sudanese. This belief may be misplaced as evidenced by this case report.

Case History

PMD was a 48 year old lawyer who presented to the Juba Medical Complex (JMC) with sudden onset of "gripping" retrosternal chest pain that did not radiate and lasted thirty minutes. It was associated with breathlessness and sweating. He denied a family history of ischaemic heart disease. He smoked 30 to 60 cigarettes daily over a number of years and consumed, according to his wife, approximately 100 units of alcohol each week. He was diagnosed with type 2 diabetes in 2007. He thought this

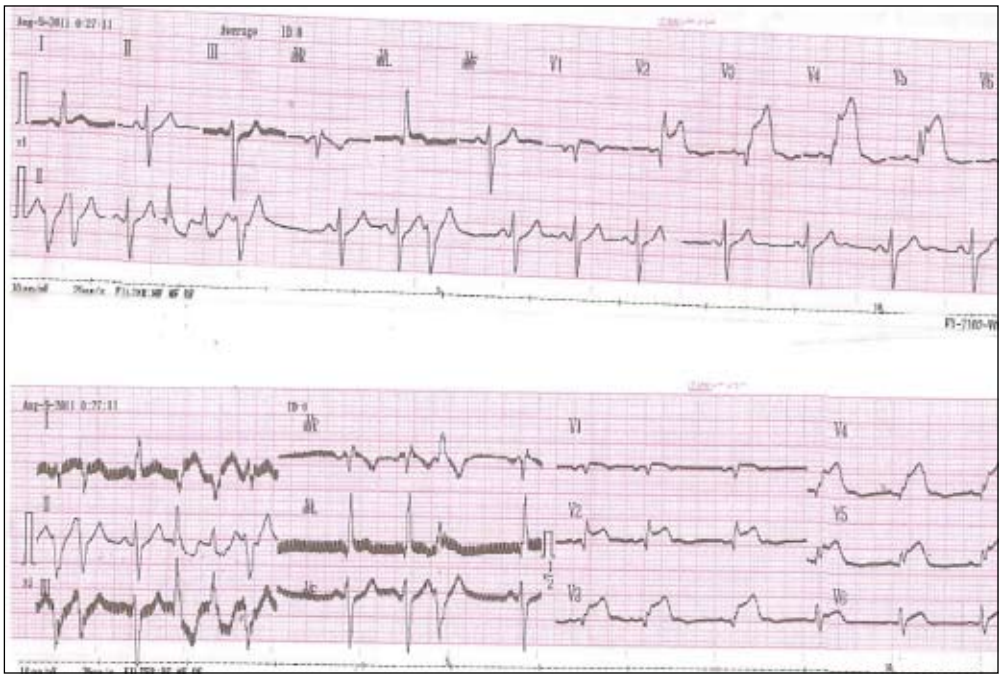

Figure 1. 12 lead ECG at presentation. The two ECG tracings were taken at presentation and show an hyper acute ST elevation in the lateral chest leads and ventricular ectopics (some of which are couplets) suggesting possible degree of reperfusion perhaps.

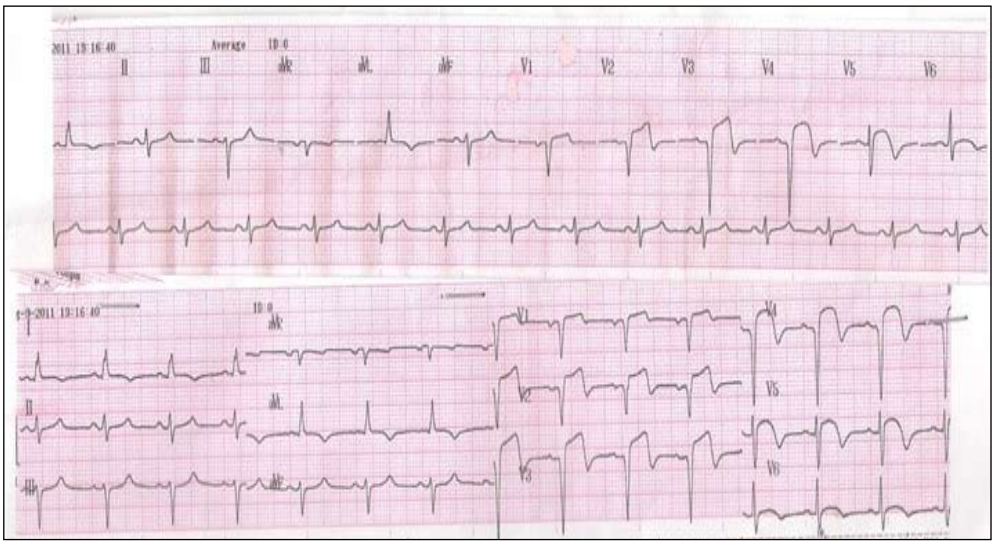

Figure 2. 12 lead ECG carried out 24 hours later showing deep Q waves and T wave inversion and ST waves that are less elevated in the lateral chest leads at presentation.

a Physician, Juba Medical Complex (JMC).
Email: ronaldworo@yahoo.co.uk

had been well controlled with diet and glibenclamide 5mgs daily. However two weeks before this admission his glycaemic control was deemed to be poor and so he was started on Mixtard Insulin 25 units in the morning and 15 units in the evening.

On examination the patient was pain free although looked unwell - pulse100/minute and regular; blood pressure 110/60. He was not in heart failure and the rest of the examination was unremarkable. There were no nicotine stains in the fingers despite the history of heavy smoking. Random blood sugar on presentation was 12mmol/litre.

The initial 12 lead electrocardiogram (Figure 1) showed hyperacute ST segment elevation in leads V1 to V6 denoting acute anterior myocardial infarction. An ECG (Figure 2) 24 hours later showed persisting anterior ST elevation with T wave inversion.

Treatment with thrombolysis is not available at JMC. Standard treatment for acute coronary syndrome was instituted with aspirin (75 mg od), an ACE (Ramipril 2.5 mg od), low molecular weight heparin, a statin (Atorvastatin 40mg nocte) and a b-blocker (Bisoprolol 5mg od). Forty eight hours later he was transferred to a cardiac unit in a neighbouring country for echocardiography, possible exercise stress test and percutaneous coronary intervention.

Comment

PMD has risk factors for ischaemic heart disease:

- cigarette smoking,
- excessive alcohol consumption and
- type 2 diabetes mellitus.

These factors are prevalent in many patients attending the JMC and in the South Sudan at large. Hence all patients in South Sudan presenting with chest pain should be assessed for possible angina or myocardial infarction, especially if they have predisposing risk factors (1). Increasing use of tobacco, obesity, hypertension and diabetes are all likely to lead to a rising occurrence of myocardial infarction. Further reports of myocardial infarction from colleagues would be welcome as this would raise awareness of the problem.

Reference:

1. Camm AJ, Bunce N. Ischaemic Heart Disease in Text book of Clinical Medicine, Eds Kumar P & Clark M. pp743-760, 2010 edition.

Safer caesarean sections at Juba Teaching Hospital

Clare Attwood[a] BM BSc

Introduction

This article describes a completed audit cycle of the mode of anaesthesia used for caesarean section at Juba Teaching Hospital (JTH).

There is a large body of evidence available that highlights the benefits of regional anaesthesia over general anaesthesia for caesarean sections (CS). The UK National Institute for Clinical Excellence (NICE) guidelines suggest that "women who are having CS should be offered regional anaesthesia because it is safer and results in less maternal and neonatal mortality than general anaesthesia"(1). In 2006, the Royal College of Anaesthetists proposed standards for best practice, suggesting that a minimum of 95% of elective CS and a minimum of 85% of emergency CS are conducted under regional anaesthesia (2).

A retrospective study at JTH of all caesarean sections between October 2008 and September 2009 had previously demonstrated that an average of 1.2 caesarean sections was performed per day – see Figure 1. Although the facilities were noted to be available for spinal anaesthesia to be the primary form of anaesthesia for caesarean section at JTH, this appeared to most often not be the method chosen by the anaesthetic medical assistants, with around 20% of CS being performed under spinal anaesthesia. A high neonatal mortality was also noted (7%), although maternal mortality was not recorded (3). My aim was to perform an audit investigating whether spinal anaesthesia usage had increased or fallen and to then spend time with the anaesthetists, understanding why general anaesthesia with Ketamine is their preference. I then intended to spend time with the anaesthetic medical assistants (AMAs), teaching and promoting safe spinal anaesthesia and re-audit to see if this influenced their use of spinal anaesthesia.

Audit Standards (based on Royal College of Anaesthetists' guidelines, 2006)

1. At least 85% of emergency caesarean sections should be performed under spinal anaesthesia. Cases exempt from this standard may include: Maternal refusal, spinal anatomical abnormalities, failed attempts at spinal anaesthesia, lack of drugs/equipment, Category 1 equivalent caesarean sections (e.g. umbilical cord prolapse, prolonged foetal bradycardia) or unstable patients (e.g. sepsis, severe APH).
2. At least 95% of elective caesarean sections should be performed under spinal anaesthesia. Cases exempt from this standard may include: Maternal refusal, spinal anatomical abnormalities, failed attempts at spinal anaesthesia, lack of drugs/equipment.

Figure 1. Lady with a uterus that had entirely herniated through the abdominal wall undergoing caesarean section (credit Clare Attwood)

Methodology

This involved the retrospective analysis of the theatre logbooks kept in Theatres One and Two at Juba Teaching Hospital, which are used to document the procedures performed and the type of anaesthesia used. After discussion with most of the AMAs, it became clear that in the context of caesarean sections "SA" = spinal anaesthesia, "GA" = general anaesthesia and "KA" = ketamine anaesthesia. In other words, the terms can be used interchangeably to mean anaesthesia with ketamine. "Thio" = anaesthesia induced with thiopentone, which was used only once, in an eclamptic patient, as the high blood pressure contraindicated the use of ketamine.

a Trust Anaesthetist, Royal Devon and Exeter Hospital, UK. Anaesthetic Registrar, Juba Teaching Hospital, South Sudan – September 2011 to January 2012. clare_attwood@hotmail.co.uk

The indications for the procedure were sometimes documented, although most often this information was lacking, or just documented to be "labour pain". When the neonate died in theatre, or was stillborn, this was also documented.

I was able to use the information from the logbooks to determine how many elective and emergency caesarean sections were performed and then to calculate the rates of use of the different forms of anaesthesia available. I was also able to record the neonatal mortality. As with the 2008-2009 study, there were no documented cases of maternal mortality.

After the initial audit confirmed an even lower rate of spinal anaesthesia than previously documented, I tried to find out the reasons for this. Through discussion with the AMAs, I found that the main reasons were:

• A lack of knowledge that spinal anaesthesia is the safest option

o The AMAs work unsupervised and many had not had any training for years. Only one AMA owned an anaesthetic textbook.

• The intermittent lack of ephedrine in the department.

o Ephedrine is the vasopressor used at JTH to counteract the hypotensive effects of spinal anaesthesia.

o The country in newly independent and the anaesthetic budget came under that of the surgical department. There had been no ordering system for drugs in place since 2009. Drugs are currently delivered through the "kit" system and do not meet the needs of the hospital.

• Surgical pressure for speed of anaesthesia.

o Due to the lack of staff and monitoring equipment, very few cases would be classed as "Category 1" in the UK, but all were treated as such. Most surgeons were seen to push for immediate anaesthesia, even in ladies who would be classed as "Category 2, 3 or even 4 (elective)" in the UK.

• A lack of confidence in spinal anaesthesia.

o Many AMAs routinely perform spinal anaesthesia for all below waist procedures and were seen to be extremely competent. However, one AMA admitted that she had little experience in spinal anaesthesia and was keen to avoid it in her practice. I suspect that there were others who also avoided spinal anaesthesia for this reason, but were less keen to admit to it.

o A fear of using spinal anaesthesia in labour.

o A few AMAs admitted that they did not like performing spinal anaesthesia on screaming, moving targets! They saw ketamine anaesthesia as the ideal solution to this.

Once the reasons for low rates of spinal anaesthesia were ascertained, I tried to address them:

• Lack of knowledge of the superiority of spinal anaesthesia

o I ran a bi-weekly teaching course for the AMAs and included spinal anaesthesia as one of the teaching topics

o The teaching was backed up by posters that I put up in the department, reiterating the benefits of spinal anaesthesia, to both mother and baby –.

o Through OAF (Overseas Anaesthesia Fund) and TALC (Teaching Aids at Low Cost) and the AAGBI (Association of Anaesthetists of Great Britain and Ireland), I arranged for anaesthetic (general, paediatric and obstetric) text books to be sent to South Sudan. Enough were provided for each AMA to have their own copy, as well as reference books to be kept in the department. These books, of course, confirm the need for spinal anaesthesia - see cover photo.

• Lack of Ephedrine.

o Short term: I placed posters in the office and in theatres, explaining how adrenaline could be diluted and used safely in the absence of ephedrine.

o Long term: Following a project researching the drug and equipment needs of the department, the Ministry of Health agreed to the provision of a regular budget and ordering system, which, when implemented, should ensure that ephedrine stocks no longer run out.

• Surgical pressure.

o As junior doctors in South Sudan are often sent to work in rural hospitals, with no senior or sub-speciality support, they were keen to learn about how to perform spinal anaesthesia. As well as teaching the process, I taught the reasons behind the need for spinal anaesthesia. The senior doctors (who perform most of the caesarean sections at JTH) endorsed and attended the teaching sessions.

• Lack of competency.

o I gave brief teaching to all AMAs on best practice spinal anaesthesia (see above) and gave them all handouts, with further information, to take home.

Table 1. Summary of anaesthesia for all caesarean sections – August 2011

	Emergency	Elective	Neonatal deaths
Spinal	8	0	0
Ketamine	46	5	4 (all emergencies)
Thiopentone	1	0	0

Table 2. Summary of anaesthesia for all caesarean sections – November 2011

	Emergency	Elective	Neonatal deaths
Spinal	8	0	0
Ketamine	46	5	4 (all emergencies)
Thiopentone	1	0	0

o I lead by example and also gave "hands-on" teaching in theatres to both the AMAs and the junior doctors.

• Fear of spinal anaesthesia in labour.

o I taught the AMAs how to make "Entonox", using the anaesthetic machine, in order to provide pre-procedure pain relief for patients in labour.

o I reiterated that spinal anaesthesia may not be the easiest mode of anaesthesia, but it is the safest and that this should be explained to the labouring mother.

Results

The initial audit demonstrated that only 13.3% of all caesarean sections were performed under spinal anaesthesia; even less than in 2008-9. 85% of cases were performed under ketamine anaesthesia, including all elective cases. There were 4 neonatal deaths (6.67% of all caesarean sections) within theatre, but it was not recorded whether these were anticipated stillbirths. It was also not clear whether unwell babies taken to the "Nursery" (neonatal high care) from theatre survived.

The re-audit demonstrated that although the first audit standard (for emergency caesarean sections) had not been met, rates of spinal anaesthesia had increased significantly (46.38% of emergency caesarean sections and 50.67% of caesareans overall). However, all elective caesarean sections in November were performed under spinal anaesthesia, meeting the second audit standard (see tables 1 and 2). Neonatal mortality rates were similar, with four babies being stillborn or dying soon after delivery (5.33% of all caesarean sections). Although very little information about these deaths was available, it should be noted that all of them were in the babies of patients under ketamine anaesthesia.

Discussion

As health professionals trained and working in the UK, it is clear to us that spinal anaesthesia for caesarean section is preferable to ketamine anaesthesia. However, for health professionals working in South Sudan, to whom little or no ongoing postgraduate education has been given, this is less clear. When compounded by a lack of senior support, a lack of available drugs and equipment and a lack of reference material, it is easy to see why ketamine anaesthesia is the anaesthetic of choice for most surgical procedures in South Sudan.

Following some "powerpoint" teaching on spinal anaesthesia, alongside the provision of practical advice and support, rates of spinal anaesthesia for caesarean section at Juba Teaching Hospital increased significantly. Although the rates for emergency caesarean sections did not meet the guidelines agreed by the Royal College of Anaesthetists or the first audit standard, this nevertheless represents an obvious improvement. It should be noted that in November all elective caesarean sections were performed under spinal anaesthesia, compared to none in August 2011. As a result, the second audit standard was successfully met.

My presence in the department will probably have resulted in some cases being performed under spinal anaesthesia that would have been performed under ketamine if I had not have been there. However, as I was present in the department for around 1/3 of cases, I am sure that this is not the only reason for the increase in spinal usage. It will be interesting to see if rates of spinal anaesthesia for caesarean section fall now that I am not working in the department.

Although the neonatal mortality rates did not fall significantly with the fall in rates of ketamine anaesthesia, it should be noted that all documented cases of neonatal mortality occurred with mothers who had been given ketamine anaesthesia. Due to the paucity of written documentation in the departmental records it was not possible to determine whether ketamine anaesthesia was used to reduce maternal distress in cases where fetal demise had already been diagnosed. As hospital notes are not stored in an organised manner, it was not practical to investigate this further.

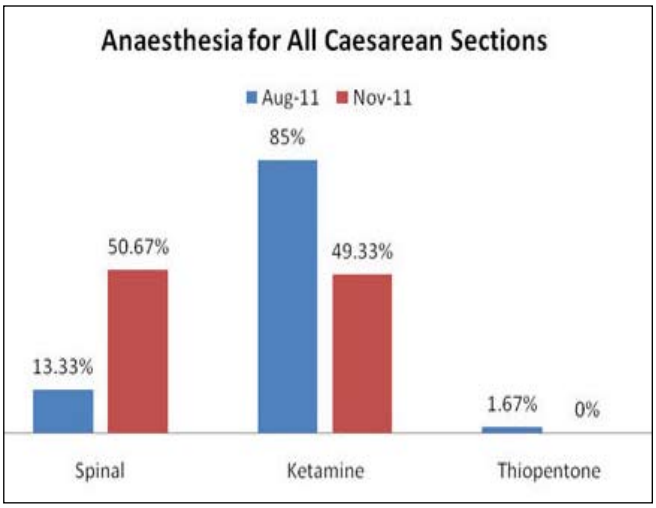

Figure 2. A comparison between modes of anaesthesia used for caesarean section in August and November 2011

Conclusion

The anaesthetic medical assistants at Juba Teaching Hospital work hard to serve the people of South Sudan. Their department is often under-equipped and undersupplied with drugs. Until recently they have had access to very little senior support and there is no provision of ongoing training. However, following some department-based training and advice and support, their practice has improved significantly – see Figure 2. Thankfully, there are now two anaesthetic doctors from Ethiopia and Kenya working in the department, who will be able to continue to support and enable sustained clinical improvement in this and other areas.

Ongoing improvement will also be facilitated by a new drug and equipment ordering system that should be coming into effect in the near future. Improved documentation of the indications for caesarean section, as well as reasons for the choice of mode of anaesthesia would enhance individual accountability and make further investigation of departmental practice more informative. The anaesthetic medical assistants of Juba Teaching Hospital are very keen for ongoing training in the form of "refresher courses", similar to those already offered to AMAs working in other East African nations. I wholeheartedly agree that enabling them to attend such courses would improve not only clinical practice, but also morale.

References

1. Caesarean Section: Full Guideline. National Collaborating Centre for Women's and Children's Health, National Institute of Clinical Excellence (April 2004) p60: Procedural aspects of CS
2. Royal College of Anaesthetists UK: Raising the Standard: A compendium of audit recipes for the continuous quality improvement in anaesthesia. 2nd ed. 2006: p166-7: Technique of Anaesthesia for Caesarean section
3. Dennison M, Ayrton J, Abdulla M. Caesarean Sections at Juba Teaching Hospital 2008 – 2009. *South Sudan Medical Journal* 2010; 3 (1) 5-9

I thank the Anaesthetic and Obstetrics and Gynaecology departments at JTH for making me so welcome, the AAGBI (Association of Anaesthetists of Great Britain and Ireland) for their support, and TALC (Teaching-aids at Low Cost) and OAF (Overseas Anaesthesia Fund) for the textbooks.

Figure 3. Baby born by caesarean section being cared for in the nursery at JTH (credit Clare Attwood)

Rehabilitation of patients with traumatic brain injuries in South Sudan

Eluzai A.Hakim[a] FRCP (Edin &Lond)

Introduction

Traumatic brain injury (TBI) is defined as brain injury due to externally inflicted trauma which may result in significant impairment of an individual's physical, cognitive and psychosocial functioning (1). In an analysis of patients admitted with trauma to Juba Teaching Hospital, Dario Kuron Lado (2) showed that of 652 patients presenting with different patterns of injury due to trauma 12% (47) had suffered head injury (see Figure 1). He also pointed out that there were no rehabilitation services for those who survive trauma with serious physical and/or cognitive disabilities. Although a recommendation was made in this study to develop a Multidisciplinary Rehabilitation Team of physiotherapists, occupational therapists and clinical psychologists, there is no evidence that there are plans to develop a rehabilitation service for patients with head injuries.

Convincing evidence has emerged that TBI patients with moderate or severe injuries will have their hospital stay reduced by approximately 30% and the re-acquisition of personal independence increased by the provision of a formal specialised inpatient rehabilitation programme (3).

- Severe traumatic brain injury is defined as an injury causing loss of consciousness for more than 6 hours and a Glasgow Coma Scale (GCS) after initial resuscitation of 3 – 8 (4).

- Moderate traumatic brain injury is defined as an injury causing loss of consciousness for more than 15 minutes and a Glasgow Coma Scale after initial resuscitation of 9 – 12/15.

- Mild traumatic brain injury is defined as loss of consciousness of less than 15 minutes and a Glasgow Coma Scale after initial resuscitation of 13-15. Patients with mild head injury rarely lose consciousness and often do well subsequently though an unknown proportion may be plagued with headaches, and episodes of forgetfulness but usually do not need hospital admission or rehabilitation. They may go on to have difficulties at work or school, or in their marriage.

a Consultant Physician and Specialist in Rehabilitation Medicine, St Mary's Hospital, Newport, Isle of Wight, PO30 5T, UK
Email: eluzaihakim@doctors.org.uk

Figure 1. Patient with TBI in Juba Teaching Hospital

(credit Dario Kuron Lado)

There is evidence that appropriate treatment in the inpatient phase for moderate and severely injured patients may improve some aspects of behaviour long term if TBI patients are nursed in a suitable environment as soon as medical and/or surgical stability is achieved. It is vitally important to transfer these patients to a Specialist Rehabilitation Unit as early as possible or nurse them in a quiet dedicated room in order to achieve the following:

- Minimise the development of secondary physical and behavioural complications. These are known to occur early in traumatic brain injury and interfere with later recovery.

- Provide regular observation by staff dedicated to the rehabilitation of such patients.

- Attend to nutritional needs which may be given through special routes such as gastrostomy feeding tubes or nasogastric tubes.

- Provide appropriate positioning to allow satisfactory ventilation, prevent pressure sore development, and minimise aspiration pneumonitis and joint capsule and muscle contractures.

For a Rehabilitation Unit to provide appropriate rehabilitation following TBI, there needs to be a dedicated ward with appropriately trained multidisciplinary staff where the patient can be nursed in a quiet environment, preferably in a single room. Those who are agitated and liable to climb over cot sides should be nursed on a mattress on the floor or on a low bed to avoid further injury.

Avoid phenothiazines for sedating agitated patients as these are epileptogenic. Animal experiments have shown that phenothiazines and haloperidol impair neurological recovery and should be avoided (3). Barbiturates should not be used. If the patients are agitated adopt the following strategy:

a. Look for an underlying cause such as alcohol withdrawal.

b. A full bladder.

c. An undiagnosed fracture or other cause of pain.

I recommend carbamazepine 200 – 600mg twice daily, starting with a small dose of 100mg and titrating the dose upwards to contain the agitation.

Prognosis in acquired brain injury

Several individuals with severe brain injury and persistent coma for several weeks have regained consciousness and gone on to lead normal lifestyles. The outcome is highly variable and unpredictable. Therefore never give a prognosis in the first few weeks after an accident as significant physical and psychological recovery can take place for at least two years or longer (5).

Conclusions

This brief article suggests establishing a small dedicated Rehabilitation Unit for managing the significant number of patients with traumatic brain injuries in the Republic of South Sudan. Trauma to different parts of the body has been recognised as an important health problem in the Republic and traumatic brain injury is common. Patients do recover if offered effective rehabilitation. Family support, as well as other forms of support, is very effective in enhancing the role of hospital rehabilitation. We must never give up rehabilitating patients with traumatic brain injury, however serious the injuries are.

References:

1. NIH Concensus Development Panel on Rehabilitation of Persons with Traumatic Brain Injury. *JAMA* 1999; 282(10): 974 – 982.
2. Kuron Lado D. Trauma, a new cause of death, disability and economic loss in Juba. *SSMJ* 2011; 4(2): 36 – 38.
3. Working Party Report of The British Society of Rehabilitation Medicine on Rehabilitation After Acquired Brain Injury 2003.
4. Teasdale G and Jennett B. Assessment of coma and impaired consciousness. A practical scale." *Lancet* 1974 2 (7872): 81-4. http://www.coma.ulg.ac.be/images/gcs_comments.pdf
5. Barnes MP and Ward AB in Textbook of Rehabilitation Medicine 2000. Oxford University Press.

Congratulations to Dario Kuron Lado who has passed both parts of the Membership of the Royal College of Surgeons. After graduating from the University of Juba and training as a surgeon on the Khartoum MD (Surgery) programme, Dario Kuron Lado worked at Juba Teaching Hospital as the main, and mostly, only surgeon for several years. In 2010 the St Mary/Juba Hospital Link arranged a Medical Training Initiative in urology for him at the North Middlesex University Hospital, UK. Dario Kuron Lado is returning to Juba where he will be acting Head of the Clinical Training Unit.

Please visit:

- **The SSMJ website – www.southsudanmedicaljournal.com for the journal and latest news**
- **The SSMJ blog – http://southsudanmedicaljournal.wordpress.com - see recent items from Drs Majok and Garang, and the Poole Africa Group in Wau. Also the report of the visit of Dr Poni Pitia, dentist from Juba Teaching Hospital to Poole Hospital. Thanks to Jon Davenport, and everyone else who contributes to the blog. Send your blog items to admin@southernsudanmedicaljournal and/or sign up to receive notices of new blogs at http://southsudanmedicaljournal.wordpress.com/about/?blogsub=confirming#subscribe-blog**
- **The South Sudan Medical Journal on Facebook**

https://www.facebook.com/#!/groups/174154965991358/

Tuberculosis 1. Epidemiology of mycobacterium tuberculosis

Robert L. Serafino Wani[a] MBBS, MRCP, MSc (Trop Med)

Introduction

An understanding of the epidemiology of *Mycobacterium tuberculosis* is critical for effective control. In this, the first article of a series, the global burden of tuberculosis (TB), risk factors for transmission and the epidemiology of Mycobacterium tuberculosis in South Sudan are reviewed.

Mycobacterium tuberculosis complex

Mycobacterium tuberculosis is a member of the Mycobacterium complex; the other members being *Mycobacterium africanum* and *Mycobacterium bovis.*

Mycobacterium africanum is most commonly found in West Africa; it causes up to a quarter of cases of tuberculosis in the Gambia (1). The symptoms of infection resemble those of M. tuberculosis. The infectivity is similar to M. tuberculosis, and it is an important opportunistic pathogen in the setting of advanced immunosuppression due to HIV or other causes. Management is identical to the management for disease due to *M. tuberculosis.*

Mycobacterium bovis is the main cause of tuberculosis in cattle, deer, and other mammals. The human bacillus may have arisen from *M. bovis* in the setting of animal domestication (2). Human *M. bovis* infection generally occurs in the setting of consumption of infected cow's milk products, Bacille Calmette-Guérin (BCG) vaccination for TB prevention, or intravesicular BCG installation for bladder cancer treatment.

Burden of tuberculosis

The epidemiology of tuberculosis varies substantially around the world. The highest rates (100/100,000 or higher) are observed in sub-Saharan Africa, India, China, and the islands of Southeast Asia and Micronesia (Figure 1). Estimates provided by USAID in 2007 for South Sudan were 228 cases per 100,000 population. In South Sudan, an estimated 18,500 people develop TB, and 5,300 die of TB annually (3).

Poverty, HIV and drug resistance are major contributors to the resurging global TB epidemic (4, 5). Approximately 95% of TB cases occur in developing countries. Approximately 1 in 14 new TB cases occur in individuals who are infected with HIV; 85 percent of these cases occur in Africa. An estimated half million cases of multidrug resistant (MDR)-TB also occur annually in Africans; even higher rates of drug resistant disease occur in Eastern Europe.

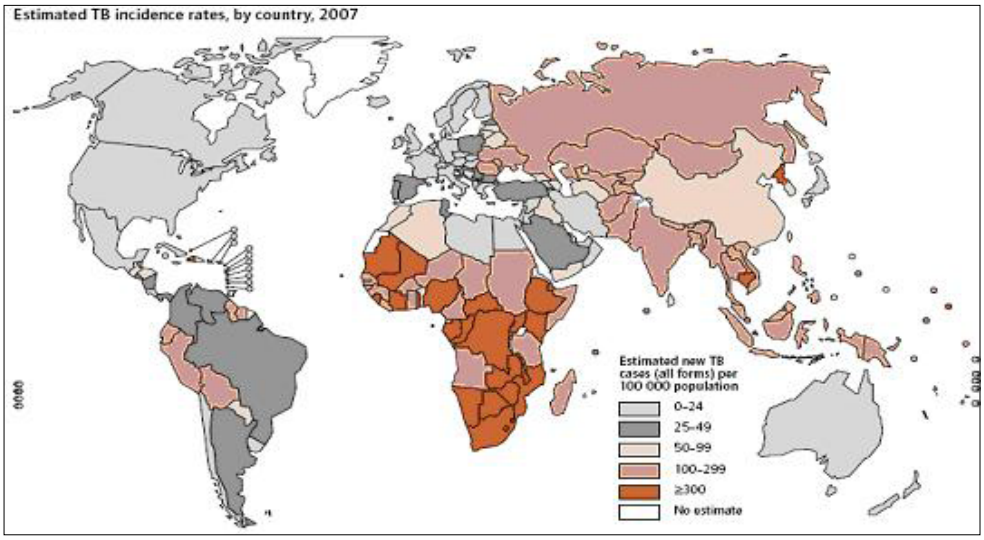

Figure 1. Estimated tuberculosis cases 2007 (Source: ©WHO http://www.health.qld.gov.au/qtbcc/images/TB2009WHO.JPG)

Risk factors

Some people develop TB disease within weeks of becoming infected before their immune system can fight the TB bacteria. Other people may get sick years later, when their immune system becomes weak for another reason (6).

Overall, about 5 to 10% of infected persons who do not receive treatment for latent TB infection will develop TB disease at some time in their lives. For persons whose immune systems are weak, especially those with HIV infection, the risk of developing TB disease is much

a Specialist Trainee in Infectious diseases & Medical Microbiology/ Virology, Royal Free Hospital, London, UK

higher than for those with normal immune systems.

Generally, persons at high risk for developing TB disease fall into two categories (7):

1. Persons who have been recently infected with TB bacteria.
2. Persons with medical conditions that weaken the immune system.

1. Persons who have been recently infected with TB bacteria

These include:

- Persons who have close contacts with a person with infectious TB disease.
- Persons who have immigrated from areas of the world with high rates of TB.
- Children less than 5 years of age who have a positive TB test.
- Persons from groups with high rates of TB transmission, such as homeless persons, injection drug users, and persons with HIV infection.
- Persons who work or reside with people who are at high risk of TB in facilities or institutions such as hospitals, homeless shelters, correctional facilities, nursing homes and residential homes for those with HIV.

2. Persons with medical conditions that weaken the immune system

Babies and young children often have weak immune systems. Other people can have weak immune systems especially those with any of these conditions:

- HIV infection.
- Substance abuse.
- Silicosis (8).
- Diabetes mellitus.
- Severe kidney disease.
- Low body weight.
- Organ transplants.
- Head and neck cancer.
- Medical treatments such as corticosteroids or organ transplant.
- Specialized treatment for rheumatoid arthritis or Cohn's disease.

In South Sudan although the exact incidence of HIV/AIDS among TB cases is not known, HIV prevalence appears to be on the rise. Data from limited population surveys show HIV prevalence rates range between 1 and 8 percent among the general population, with higher rates (up to 25 percent) found in border towns. Multidrug-resistant (MDR) TB cases account for around 1.9 percent of new cases and usually occurs among defaulters and relapse cases.

The TB epidemic is an outgrowth of a long-standing war, which has resulted in poverty, malnutrition, and a large number of displaced populations and refugees. Destruction of health infrastructure, lack of microscopic services, and displacement or lack of health personnel have also contributed to the epidemic (3).

References:

1. deJong BC, Antonio M, Gagneux S. Mycobacterium africanum: review of an important cause of human tuberculosis in West Africa. *PLoS Negl Trop Dis* 2010; 4:e744.
2. Cole ST, Brosch R, Parkhill J, et al. Deciphering the biology of Mycobacterium tuberculosis from the complete genome sequence. *Nature* 1998; 393:537.
3. USAID Health: Infectious Diseases, Tuberculosis, Countries, Sudan. Available on line at: http://www.usaid.gov/our_work/global_health/id/tuberculosis/countries/africa/ssudan_profile.html
4. Corbett EL, Marston B, Churchyard GJ, De Cock KM. Tuberculosis in sub-Saharan Africa: opportunities, challenges, and change in the era of antiretroviral treatment. *Lancet* 2006; 367:926.
5. Wright A, Zignol M, Van Deun A, et al. Epidemiology of antituberculosis drug resistance 2002-07: an updated analysis of the Global Project on Anti-Tuberculosis Drug Resistance Surveillance. *Lancet* 2009 Apr 15.
6. Centers for Disease Control and Prevention. TB Basic facts. CDC/TB/Basic TB Facts. Available on line at http://www.cdc.gov/tb/topic/basics/default.htm
7. Centers for Disease Control and Prevention. TB Basic facts. CDC/TB/Basic TB Facts/Risk Factors. Available on line at http://www.cdc.gov/tb/topic/basics/risk.htm
8. Huaux F. New developments in the understanding of immunology in silicosis. *Current Opinion in Allergy & Clinical Immunology:* 2007: 7 (2):168-173.

Three UK midwives go to Yei

Jo Holland[a] RM , Terri Kemp[a] RM and Nancy MacKeith[ab] RM

The link between Winchester and Eastleigh Healthcare Trust and Yei Civil Hospital began with a visit in November 2010 to see how staff could work together. We were greatly helped by John and Poppy Spens who had been living in Yei and helping to run the Martha primary care clinic. After planning and preparation the second visit took place in October 2011. We three midwives took part in this as the focus was on maternity care. Other members of the group were a physician, a paediatrician and two technicians who mended hospital equipment and reported on facilities such as the water supply. Yei Civil Hospital provided us with accommodation and food. They looked after us very well.

Figure 1. Simon checks that a student midwife is getting air into the teaching doll (credit Nancy MacKeith)

On our arrival we found that there was a midwife from Kenya, Patronella, funded by UNFPA, who had been working on the maternity ward for 6 months and also that the situation with midwifery staff had improved since the previous visit. Observations were being regularly undertaken on mothers and babies. Mothers were being given regular IV antibiotics and analgesia after surgery and staff were undertaking dressings using aseptic techniques. Premature babies were being tube fed using mothers' expressed breast milk. We decided to concentrate our work on the student midwives and Sister Florence in charge of the midwifery course supported us in this.

Figure 2. Prizes after the exam! (credit Peter Kemp)

We taught examination of the newborn, resuscitation, use of the partograph, abdominal palpation, sepsis, postpartum haemorrhage and anaemia to a mixture of 1st and 2nd year student midwives. Taught sessions in the classroom were followed by practical sessions on the maternity ward. In addition we presented the college with the ResusciBaby teaching doll. Doctors David Sheppard and Simon Struthers gave lectures and practical sessions to laboratory students, student nurses and student midwives.

At the time of our visit there was a delegation from the Ministry of Health providing training for midwives and maternity child health workers. This presented us with the opportunity to meet with Polly Grace Osuo, the person in charge of midwifery education in Central Equatorial region and to explain our reason for being there. She was pleased to receive the donation of a perineal repair teaching aid for the Diploma in Midwifery course in Juba.

At the end of our stay a short exam and practical test were set for the student midwives and prizes of text books and Pinards foetal stethoscopes were given to all participants.

We also went to outreach clinics in the villages and taught at the Martha clinic.

At our next visit in June we will focus on surgery, both general and obstetric. After our return the Basic Services Fund in Juba paid for improvements to the plumbing at the hospital and several wards got new sinks.

We very much enjoy our link to the new South Sudan!

a Midwife at Royal Hampshire County Hospital
b Correspondence to Nancy MacKeith nancy_mackeith@yahoo.com

Resources

These are listed under:

- **HIV/AIDS**
- **Maternal, neonatal and child health**

HIV/AIDS

Early infant diagnosis for HIV: is it taking place early enough?

Current early infant diagnosis (EID) protocols may need to be revised in the light of current WHO guidelines on the prevention and treatment of HIV-infection in low-resourced settings, according to Dr Sherman of Wits University. She said "Six weeks may not be the right time to be testing," referring to the current protocol for performing EID at the six week immunisation visit. Testing at this time delivers diagnoses a bit too late to take full advantage of lifesaving early antiretroviral therapy (ART) for infected infants, and does not account for the effects that prolonged daily nevirapine prophylaxis could have on diagnostic accuracy. See Dr Sherman's speech at the 19th Conference on Retroviruses and Opportunistic Infections held March in Seattle at http://www.aidsmap.com/Early-infant-diagnosis-for-HIV-is-it-taking-place-early-enough/page/2284995/ [from AidMap: 13 March 2012]

Review of delivery of HIV and tuberculosis services in sub-Saharan Africa

This review identifies and synthesises published evidence for the effectiveness and cost-effectiveness of eight integrated strategies recommended by WHO that represent coordinated delivery of HIV and tuberculosis services. Evidence supports concurrent screening for tuberculosis and HIV, and provision of either co-trimoxazole during routine tuberculosis care or isoniazid during routine HIV care and at voluntary counselling and testing centres. Although integration of antiretroviral therapy into tuberculosis care has shown promise for improving health outcomes for patients, evidence is insufficient to make conclusive claims. Evidence is also insufficient on the accessibility of condoms at tuberculosis facilities, the benefits of risk reduction counselling in patients with tuberculosis, and the effectiveness of tuberculosis infection control in HIV health-care settings. The vertical response to the tuberculosis and HIV epidemics is ineffective and inefficient. Implications for policy makers and funders include further investments in implementing integrated tuberculosis and HIV programmes with known effectiveness, preferably in a way that strengthens health systems; evaluative research that identifies barriers to integration; and research on integrated strategies for which effectiveness, efficiency, and affordability are not well established.

Ref: Integrated delivery of HIV and tuberculosis services in sub-Saharan Africa: a systematic review. Uyei J et al. *The Lancet Infectious Diseases* - Vol. 11, Issue 11, Pages 855-867.

Effect of using HIV and infant feeding counselling cards on the quality of counselling provided to HIV positive mothers

The aim of this cluster randomized controlled trial was to determine the effect the World Health Organization HIV and infant feeding cards on the quality of counselling provided to HIV positive mothers in Zambia by health workers about safer infant feeding options. It concluded that the addition of counselling cards to the counselling session for HIV positive mothers were a valuable aid to counselling and significantly improved the quality of the counselling session.

Ref: Effect of using HIV and infant feeding counselling cards on the quality of counselling provided to HIV positive mothers: a cluster randomized controlled trial. Katepa-Bwalya M etal. International Breastfeeding Journal. 2011, 6:13.

Telling children about their HIV status

WHO has developed guidance for health care workers on how to support children up to 12 years of age and their caregivers with disclosure of HIV status. This is part of a comprehensive approach to ensuring child wellbeing—that is, the physical, emotional, cognitive and social well-being of the developing child—following the child's own diagnoses of HIV or that of a parent or close caregiver. Disclosure is crucial to the continuum of HIV care.

Ref: Guideline on HIV disclosure counselling for children up to 12 years of age. WHO, Geneva. November 2011 http://whqlibdoc.who.int/publications/2011/9789241502863_eng.pdf

Maternal, neonatal and child health

South Africa: Double burden of undernutrition and overweight

The double burden of undernutrition in children and overweight/obesity in women is getting worse because of increased childhood wasting and the high number of urban women who are obese, according to new research. Between 1999 and 2005, the number (cont on page 50)

The ABCDE Approach – triage and treatment

Frankie Dormon[a], MB.BS. FRCA

Introduction

The importance of triage is well recognized and the benefits of the ABCDE approach are well documented. It is particularly important to ensure that the limited health resources in South Sudan are directed to those patients who need them most.

Many patients die within the first few hours of presenting at the hospital often from hypoxia, dehydration or sepsis and early intervention can save lives. The charts on pages 51 and 52 are adapted from the World Health Organization (WHO) Emergency Triage and Treatment (ETAT) course and UK teaching (1, 2), and are suitable for patients of all ages (3). They aim to give South Sudanese doctors and nurses wherever they work the information they need to recognize, and then treat, patients who need urgent intervention. The charts can be printed, laminated and displayed in any area where patients are at risk of deterioration, such as wards, theatres and outpatient departments. They can be used as a teaching guide and as a reminder of key patient management actions. Laminated copies are on the wall of the out-patient department at Wau Teaching Hospital.

The ABCDE Approach Triage Chart (Chart 1)

This chart lists the signs that identify the three categories of patients (of all ages) seen in the outpatient departments. The same signs may be used on the ward when nurses need to decide whether to call a doctor in an emergency. Ideally the nurse will recognise when a patient starts to deteriorate and will give the necessary treatment before the patient's condition becomes too serious - using the graded response helps nurses to prioritise.

3 categories of out-patients

These categories are used in WHO's ETAT course (1). This course covers triage and treatment of children in more detail, but requires 3½ days to fully cover.

1. **Emergency** – patients showing signs indicating a severe condition. Chart 1 outlines each physiological parameter to measure using the ABCDE approach. These patients need immediate treatment.
2. **Priority** – patients at risk of sudden deterioration who should not be left to wait in the clinic; they may be breathing rapidly, have a higher than normal heart rate and a high temperature. They may be drowsy or dehydrated. They need not show all these signs at the same time, as any one may indicate a worsening condition.
3. **Queue** – well patients who are able to wait, and need to be encouraged to wait, so allowing the sicker patients to get priority.

In Wau we have started to introduce triage by stamping the notes of out-patients; other countries have used coloured discs or a stamp onto the patient's hand. Whatever is used, nurses have shown that they are able to identify which patients should be given emergency or priority status. At Wau we showed nurses how to periodically review all waiting out-patients so that they can upgrade anyone who deteriorates. This leaves the doctors to manage their workload more effectively, knowing that there are unlikely to be very unwell patients waiting to be seen.

It is important that doctors appreciate the importance of triage, support the nurses working with them and work as a team.

The ABCDE Approach Treatment Chart (Chart 2)

This gives practical advice on emergency management of unwell patients.

Using the ABCDE approach

- **Airway** assessment is always the first as it is imperative that the airway is not obstructed. For detailed advice on management of the airway see the WHO ETAT course (1).
- **Breathing** should be adequate; if breathing assistance is required use a bag valve mask device or give oxygen if available. Only when problems with airway and breathing are addressed should the clinician move onto circulation.
- **Circulation.** The chart gives guidance on the use of fluids. It is important to recognise malnutrition at this stage, as rapid infusion of intravenous fluids to a malnourished child can be very dangerous.

a Consultant Anaesthetics and Intensive Care, Medical Lead for Poole Africa Link frankie@pride.me.uk

Depending upon measurement of capillary refill, heart rate and blood pressure, give fluids: rapidly IV, slowly IV, or orally.

- **Disability.** If the patient shows signs of disability (either coma or convulsion) airway and breathing management are top priority. It is then appropriate to insert an IV cannual and measure the blood sugar if possible. These patients are at risk of low blood sugar and often it is safer to give glucose as soon as possible.
- **Dehydration** - is so common in tropical countries that checking for signs of dehydration should be routine. The signs of shock have already been looked for while assessing circulation but specific examination for loose skin, lethargy and sunken eyes should occur.
- **Exposure.** Finally it is important to look at the whole patient, to look for signs of a rash, trauma or swollen abdomen.

References

1. WHO. 2005. Emergency Triage and Treatment (ETAT) course. Manual for participants and Facilitator guide. Geneva, WHO. http://www.who.int/child_adolescent_health/documents/9241546875/en/index.html
2. Greater Manchester Critical Care Skills Institute. Acute Illness Management (AIM) course www.gmcriticalcareinstitute.org.uk
3. Acute Life Threatening Events, Recognition and Treatment (ALERT) course. Based at Portsmouth Hospital in UK. www.alert-course.com

We thank WHO for permission to adapt their charts from the Emergency Triage and Treatment (ETAT) course (1).

Resources . . . cont from page 48

of wasted children affected increased from 4.3% in 1999 to 5.8% in 2005. Around 14% of children were overweight or obese in 2005, whereas almost 52% of women were overweight or obese. Researchers suggest investing in the public health system to support community-based programs that use a lifestyle approach to prevent obesity. Programs targeting pre-school and school-aged children would be the most cost-effective and practical.

Ref "Overweight among children decreased, but obesity prevalence remained high among women in South Africa, 1999-2005" Public Health Nutrition 2012; 15(4):594-599 http://bit.ly/wxzV5z [procor 7 March 2012]

Intermittent preventive therapy for malaria with monthly artemether—lumefantrine for the post-discharge management of severe anaemia in children aged 4—59 months in southern Malawi

Young children with severe malarial anaemia in Africa are at high risk of readmittance to hospital or death within 6 months of discharge. The authors of this multicentre, randomised, placebo-controlled trial postulate that in areas with intense malaria transmission, chemoprevention with intermittent preventive therapy post-discharge given to children with severe malarial anaemia might reduce rates of readmittance to hospital for severe anaemia or malaria.

Ref: Intermittent preventive therapy for malaria with monthly artemether—lumefantrine for the post-discharge management of severe anaemia in children aged 4—59 months in southern Malawi: a multicentre, randomised, placebo-controlled trial. Phiri K etal. The Lancet Infectious Diseases, Volume 12 (3):191 - 200, March 2012

The Healthy Newborn Network (HNN)

HNN (at http://www.healthynewbornnetwork.org) is a partnership of organizations and individual members committed to improving newborn health around the world. HNN connects advocates around the world and provides a platform for discussions and interactions on newborn and maternal health topics. It has a vast library of newborn health resources, featuring the latest in newborn health research, news, resources, events, articles, videos and success stories from around the world. See http://www.healthynewbornnetwork.org/topics. Join the network at the website.

Chart 1. The ABCDE Approach – Triage

Treat First what kills first

Identification of Emergency, Priority and Queue patients

	Emergency	Priority	Queue
Airway	Obstructed	At risk	Clear
Breathing Rate	>40 or <10	30 -40	10-30
Breathing Colour	Blue (Cyanosis)	Pink or Pale	Pink
Breathing Effort	Distressed using accessory muscles	Mild distress	No distress
Circulation Capillary Refill	>3 second (shock)	>2 seconds	<2 seconds
Circulation Pulse rate	>150 (<40)	>130 (<60)	60-100
Circulation Temperature	Low (Shock)	Normal or High	Normal or High
Disability Coma	Unresponsive Pain response	Voice Response	Alert
Disability Blood sugar	<2	2-3	>3
Dehydration	Skin pinch >2 seconds Lethargic	Skin pinch <2 seconds, Alert Malnourished	Mild Alert and well nourished
Exposure	Major Trauma Florid total skin rash	Minor injury Mild total skin rash	Nothing evident or limited rash

Produced by Frankie Donnon and team for Wau Teaching Hospital frankie@pride.me.uk

Chart 2. The ABCDE Approach - Treatment

Emergency Treatment of Children and Adults

Airway – (Care with Cervical Spine in Trauma)

- Clear airway
- Suction – If necessary

Breathing

- Give assisted ventilation if not breathing adequately
- Use oxygen if available

Circulation – Child

	Malnourished	Well Nourished
Capillary Refill >3 seconds	Fluids IV Slowly	Fluids IV rapidly
Capillary Refill 2-3 seconds	Oral Fluids	Fluids IV
HR >150	Fluids IV Slowly	Fluids IV Rapidly
HR 130-150	Oral Fluids	Fluids IV
Low Blood Pressure	Fluids IV Slowly	Fluids IV Rapidly

Circulation – Adult – Unwell.

If Blood pressure <100 and Pulse > 100 give Normal Saline 500 mls.
Reasses and Repeat if still abnormal and patient unwell

Disability

	A	B	C	D
Coma	Clear/support	Recovery Position	IV Cannula	Blood sugar
Convulsion	Clear/support	Recovery Position	IV Cannula	Blood sugar/Drugs

Dehydration

	Malnourished	Well nourished
Signs of Shock	Fluids IV Slowly	Fluids IV Rapidly
Skin Pinch >2 seconds	Fluids IV Slowly	Fluids IV Rapidly
Lethargic	Try oral fluids first	IV Fluids
Sunken Eyes	Try oral fluids first	IV Fluids

See Chart on Fluid Administration (to be published later)

Exposure

Check the whole patient for other signs. Rash, Trauma, Abdominal Distention.

Produced by Frankie Dominon and team for Wau Teaching Hospital frankie@pride.me.uk