

# Clinical Review

Clinical Review identifies issues in the medical literature of interest to clinicians in Africa. Essential references are given at the end of each section

## Mental Health Review

### Interactions between HIV infection and mental disorder – the example of mania

The mental health implications of the HIV/AIDS epidemic in sub-Saharan Africa have not received the investigation and research attention that they warrant. Two recently published reviews that are easily available to practitioners in Africa describe the associations between HIV/AIDS and mental disorder. The first is a practice-orientated review in the electronic newsletter, *HIV/AIDS Treatment In Practice* (HATIP) (<http://www.aidsmap.com/hatip>),<sup>1</sup> and the second is a peer-reviewed paper in the *African Journal of Psychiatry* (AJOP). This journal was indexed in MEDLINE for the first time in 2009 and all content is free to view at <http://www.ajob.co.za>.<sup>2</sup>

HIV/AIDS and mental disorder are associated in a number of ways. Neuropsychiatric presentations may occur secondary to primary HIV infection of the central nervous system (CNS), e.g. HIV-associated dementia, or secondary to opportunistic intra-cerebral infections. Depression, anxiety, and substance misuse may be precipitated by a new diagnosis of HIV, or by the stress of living with stigma and chronic physical ill health, particularly in the context of poverty and social disadvantage. Treatment with the antiretroviral efavirenz has been associated with psychiatric symptoms, including depression. Finally, studies in high-income settings show that mental illness and substance misuse can be risk factors for high-risk sexual behaviours and poor medication adherence, although research evidence for this in sub-Saharan Africa is limited.

Two recent papers from Uganda focus upon the association between HIV/AIDS and acute manic episodes.<sup>3,4</sup> Mania is an acute psychiatric presentation characterised by elated mood, irritability, over-activity and over-talkativeness, reduced need for sleep, grandiose beliefs in status (e.g. 'I am the president of this country') and abilities (e.g. 'God has given me the power to cure AIDS'), reckless sexual and financial behaviour, and sometimes hallucinations. Manic episodes usually occur as part of Bipolar Affective Disorder (BPAD), a primary psychiatric disorder characterised by recurrent episodes of both mania and depression, and that has a strongly genetic aetiology. However, mania can also occur secondary to general medical conditions includ-

ing HIV/AIDS. 'Secondary mania' occurring for the first time in patients suffering from advancing HIV disease has been well described in high-income countries and is thought to be caused by a direct effect of HIV infection in the CNS.

The researchers in Uganda explored the demographic and clinical characteristics of three groups of patients presenting with acute manic episodes:

- those with a personal or family history of BPAD ('primary mania') who were HIV-uninfected;
- those with a personal or family history of BPAD ('primary mania') who were HIV-infected;
- those with no personal or family history of BPAD who were HIV-infected (i.e. 'secondary mania').

In both studies, consecutive patients presenting with an acute manic episode were recruited from general psychiatric admission units at Mulago and Butabika Hospitals.

In the first study,<sup>3</sup> the HIV-uninfected primary mania group (n=64) and the HIV-infected secondary mania group (n=61) were compared. The secondary mania group were older, more likely to be female, had lower educational attainment and socio-economic status, and were more likely to be widowed. Some 52.5% were World Health Organization (WHO) stage 3 or 4, and mean CD4 count was 392 vs. 823 cells/mm<sup>3</sup> in the HIV-uninfected primary mania group. Clinically, those with mania secondary to HIV infection tended to present with irritability rather than elation, had more paranoid delusions and auditory/visual hallucinations, and were more cognitively impaired. Only half of the secondary mania group knew that they were HIV infected prior to admission.

These results support the earlier data from high-income settings, showing that there are indeed demographic and clinical differences in the presentation of primary mania and mania secondary to HIV infection.

In the second study<sup>4</sup> the authors recruited 151 subjects and compared characteristics of all three groups (61 primary mania HIV-uninfected, 62 secondary mania, and 28 primary mania HIV-infected).

Among the most interesting results from this study was that, although the HIV-infected primary mania group shared some similarities with HIV-uninfected primary mania group (i.e. first onset of mood disturbance in early twenties, tendency to elation rather than irritability, similar educational level), they had other characteristics that were similar to the secondary mania group. They were also older at recruitment and had greater total manic symptoms. Surprisingly, they were more immunosuppressed (mean CD4 count 190 vs. 383 cells/mm<sup>3</sup>) and more cognitively impaired than even the secondary mania group.

Thus it appears that patients with pre-existing BPAD (or family history) who become HIV infected have a particularly poor outcome. In their discussion, the authors suggest that HIV infection may worsen the course of BPAD leading to more cognitive impairment and more severe episodes. They also speculate that cognitive impairment and functional disability might lead to people with BPAD failing to access healthcare, thus explaining their poor condition (including marked

immunosuppression) at presentation.

There are limitations to these studies, notably the fact that the ascertainment of previous personal or family history of BPAD was based on retrospective recall, but the findings have important clinical implications nevertheless. Firstly, assessment of HIV status should form part of the work up of all patients with acute mania, irrespective of whether they have an established history of BPAD. Secondly, the ongoing care of people living with chronic mental disorder such as BPAD should include regular review of their physical health and steps should be taken to ensure that they have equality of access to HIV services. For someone with known existing BPAD, usual voluntary counselling and testing (VCT) can occur following recovery from an acute episode (or at routine follow-up), although particular attention should be paid to the social supports available to the person. In suspected secondary mania, or if the manic episode is not responding to treatment, it may be necessary to carry out 'diagnostic' HIV testing without usual VCT procedures, on the basis that the result will alter immediate management.

Regarding treatment, there is minimal research to guide practice. Standard treatment of acute mania includes use of antipsychotic medication with or without adjunctive short-term use of a benzodiazepine. In people with BPAD, the risk of future relapse can be reduced by a long-term 'mood stabiliser', such as lithium, carbamazepine, or sodium valproate. Antipsychotics may also be effective mood stabilisers. In people with advancing HIV disease, treatment of acute mania may be complicated by increased risk of side-effects of antipsychotic medication (e.g. Parkinsonism), or there may be failure to respond. Commencing HAART in combination with antipsychotic medication may be indicated and there are preliminary reports of the effectiveness of this. Care may be needed when combining HAART and mood stabilising drugs because of interactions with liver metabolism. At a service organisation level, systems should be put in place to ensure that, if HAART is commenced during admission to psychiatric hospital, it is then continued and monitored following the patient's discharge to his/her home district.

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## Surgery Review

### Club foot

If you had to think of a difficult and intractable orthopaedic problem on the African continent, club foot would immediately spring to mind. It is a multi-factorial problem and one in a sense that is closely related to the increasing provision of medical services. In times past – not so long ago in fact – no treatment was given and many children grew up with untreated club foot. This resulted in complete deformity such that one foot could only follow the other in a sequential manner – the so called 'cog wheel gait.' I have seen many such children and adults. They are mobile and can walk but not run, or be in any way agile such as in sport. The drive to treat is now strong and paradoxically adds to the difficulty in that a partially, or badly treated club foot can result in a painful deformed foot whereas the untreated one is painless.

The question is what treatment to give in particular circumstances – country, town, district – that is consistent, reliable, and will deliver a normal or near-normal foot. I was, therefore, very pleased to have read the recent excellent leading article in which all aspects of club foot are covered and the main lines of treatment described.<sup>1</sup>

There is no doubt that the worldwide popularity of the Ponseti method has become the benchmark. It is not easy, but has many important aspects that make it an ideal treatment for Africa.

Firstly it does not rely heavily on operative treatment. Secondly it is carried out by a team of medical workers who do not need to be doctors or surgeons. These are usually physiotherapists, occupational therapists, or indeed healthcare workers to whom the method can be taught. Thirdly, it is a method, that, contrary to my first understanding, can be used well past the neonatal period – but I have no first-hand experience of its use at 3–6 months.

There is a catch, this method is not a complete panacea. Those who use this method must be taught – and taught in courses run by experienced personnel. These courses are not easily found, or run. In the countries where I have worked (mainly central/southern Africa) I know that courses have taken place, but it needs to be on a regular basis due to staff changes.

The Ponseti method requires consistency, both on the part of the mother, (not too difficult) and the staff. From my experience this can be extremely difficult at times. Families come from long distances for treatment, which requires a change of plaster initially every 3 days and then every week. It then requires the use of a special night splint, which can be difficult to get in many countries.

My own experience in Africa has been different. I have found that there is no uniformity of presentation. Most babies do not start treatment after birth. They are brought at any time during the first year and often later. I have found that if treatment is started and is seen to work, the mothers continue to attend. If some treatment is done but is irregular, and does not work, the mothers

default. This is particularly bad if the child has had an operation since there will be a relapse and further operations are very difficult and work very poorly.

If there is consistency in early plaster treatment, which corrects the deformity (even partially), then postero-medial release at 3–6 months with consistent follow-up will produce a good result.

I have been convinced by many colleagues that the Ponseti method does indeed work and minimises the need for extensive surgery at 3–6 months. This is a bonus.

The last word has not yet been said on club foot, but at least with Ponseti we have a glimmer of hope that one method will work for the majority of patients in the most difficult situations – particularly in Africa.

The development of club foot management over the years is well covered in the article: from the present understanding of aetiology to previous regimes of repeated casting until old enough for operation; to the difference between limited posterior release and the full postero-medial release. For a full and concise up-to-date account of club foot this is excellent reading and highly recommended.

### HIV and fracture healing

From an article that is easy to read and understand to one that is the opposite.

Africa lives in the throes of a terrible pandemic. Those of us who live and work there are confronted daily with the results of this scourge. Hopefully in the future with the disease under control or even eradicated we will look back on a period similar to the massive epidemics of the black death or waves of smallpox. However for the moment we all have to deal with its consequences and many of these are orthopaedic.

The effects of this infection are widespread on the immune system but with far-reaching effects on nearly all bodily processes. Since fractures and trauma account for such a high percentage of morbidity in Africa – particularly in the young – we are frequently dealing with HIV/AIDS patients who have open and closed fractures and multiple injuries.

There has been a clinical impression for some time that having HIV affects the way bones behave, from being susceptible to infection to the way fractures heal. These impressions had no scientific basis until now. In the second article<sup>2</sup> there is full coverage of the way in which HIV/AIDS influences bone metabolism and fracture healing. The article is very complicated and difficult to read but contains important established information.

After a lengthy consideration of all the basic immunology of bone function and how it is affected by HIV, several main facts are established:

- there is reduced bone mineral density and an increase of fragility fractures;
- at the start of antiretroviral (ARV) treatment the bone density further reduces but then recovers;
- there is reduced bone turnover and advancing HIV may impede bone formation and increase resorption. These processes may help to explain why 60% of

HIV patients have avascular necrosis of the femoral head. It is surmised that there is an affect of reduction of blood flow. This may help to explain why such patients have a slow rate of bone union.

When it comes to fractures, it is well known that HIV patients with open fractures have a much higher incidence of infection. Research indicated that an infection rate of 40–70% occurs. This has led to the current practice of avoiding major internal fixation in open fractures, concentrating on external fixation instead. Although there are papers stating that in closed fractures after open reduction infection rates are the same as the general population, other clinical experience does not support this. Thus the combination of the increased infection rate and the slower healing rate explain why HIV patients do so badly after fractures.

The authors also cover various suggestions for combating this osteopenia and reduced bone mass. These include calcium, vitamin D, and diphosphanates.

The use of ARVs may alter the present situation, as with this treatment and particularly the extended range of drugs (which means HIV patients are living much longer) fracture healing will have to be studied again.

Now that these effects are known, it will be possible to be pro-active in improving fracture healing. This would involve changing fracture treatment methods, maintaining nutritional status, the use of biphosphanates and possibly statins, which reverse some of the changes in HIV.

Fracture healing in HIV patients is now the focus of much needed attention. The authors of this paper have direct experience in the field and their views can be firmly respected. For an understanding of the problem this review is excellent.

### Tibial fractures

From one common, difficult-to-treat problem (club foot), to one very difficult problem (not easy to understand and very difficult to manage) to one very common problem (easy to understand and easy to treat)? But is this the case?

Tibial fractures are as frequent as wrist and ankle fractures. However, I would venture to suggest that they are in general rather badly treated. Everyone knows the basic treatment and can do it – particularly in closed fractures. An above-knee plaster is all that is needed for most. But the problem does not end there and the result is very dependent on a few factors.

How long does the fracture take to unite? When can the patient bear weight? What will the final result be in terms of knee and ankle/foot function? A poor result will make life difficult for the patient for many years to come and could affect his/her earning capacity.

I would like to review an article written in 1970 by the acknowledged supremo of fracture treatment, Professor Augustus Sarmiento.

He published an article in the *American Bone and Joint Journal* on the results of 135 closed tibial fractures treated by a brace. His thesis was clear. With this treatment, closed tibial fractures (with shortening of less than 12 mm and corrected to acceptable alignment) will unite well within 12 weeks with good knee and ankle

function – the patient being able to walk and engage in normal activities during that period.

Many of Sarmiento's principles are the working knowledge of non-operative or functional fracture treatment today. He has studied more than 1000 tibial fractures and has repeatedly confirmed his findings. His method is to reduce the closed tibial fracture under general anaesthetic and apply an above-knee plaster correcting alignment and rotation. Shortening cannot be corrected by manipulation. If the shortening is within 12 mm it can be accepted and will not get worse, even with early weight-bearing. This took some time to be accepted but is the cornerstone of his method. After 2 weeks the plaster is removed and a custom-made plastic, polypropylene (or similar) brace is applied. It is moulded to the upper tibia and has an ankle joint which fits into the shoe.

If the shortening is more than 12 mm or is not acceptable, or the alignment and rotation cannot be corrected by manipulation, another method must be used.

The article goes on to describe further methods of fracture management by bracing, e.g. the humerus, forearm, and distal radius.

These methods are ideal for the African continent with our constant shortage of materials for operation, the lack of skilled personnel, and shortage of operating time. We need these methods in order not to just treat patients in a second-best manner, but to give them the best whenever possible.

This article is copiously illustrated with many photographs and diagrams and is very easy to understand. The author does not discuss my own particular preference in femoral fractures – the femoral fracture brace – but this is also a very good method in suitable patients, with good long-term results and almost no complications. I highly recommend this to everyone, and if you have not started yet, make plans to do so. You and your patients will be grateful.

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## Family Medicine Review

### Managing chronic illness

The increasing epidemic of chronic illnesses has been frequently reported in recent years. Chronic illness is considered the new global epidemic, and management of these conditions is already consuming a major portion

of the world's healthcare resources. Developing countries around the world, including Africa, are not spared from this phenomenon; cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes cause an estimated 35 million deaths each year (60% of all deaths globally) with 80% of these in low- and middle-income countries.<sup>1</sup> Evidence from rural South Africa indicates that the continent is already experiencing a rapid transition in causes of mortality, with an increasing prominence of non-communicable diseases.<sup>2</sup>

Tackling chronic illness effectively is a major challenge for the health system in any country. There is a need to improve the delivery of primary care services to chronically ill patients. Effective models for doing this are required. Concerns about the cost of these are raised regularly, particularly in cash-strapped African healthcare systems, which are often facing a quadruple burden of disease (HIV and TB; chronic illness; injury and violence-related deaths; maternal, neonatal, and child mortality), as was illustrated recently in the *Lancet* series on South Africa.<sup>3</sup>

A recent Canadian study assessed whether chronic disease management differed among four models of primary healthcare delivery and, particularly, which practice organisational factors were associated with high-quality care.<sup>4</sup> The researchers carried out a cross-sectional survey of 137 randomly selected primary care practices in Ontario Canada, representing the four primary care delivery models in that province, viz. fee for service, capitation, blended payment, and community health centres (CHCs). The survey included assessment of evidence-based care for patients with diabetes, hypertension, congestive heart failure, and coronary artery disease.

Their major finding was that chronic disease management was superior in the CHCs. In the CHCs, practitioners found it easier to promote high-quality care through longer consultations and inter-professional collaboration than those functioning within other models. What is of particular interest and relevance to us in Africa is that, independent of the delivery model, high-quality chronic disease management was associated with the presence of a nurse practitioner; the presence of a nurse practitioner was associated with a 10% absolute increase in disease management score, the composite score used to assess evidence-based care for the target chronic diseases. Given that nurse practitioner-based services, and similar healthcare delivery models which depend on mid-level medical workers (clinical officers and other physician assistant equivalents), are the norm in Africa, this is encouraging.

However, there is a caution in their findings too. Quality of care decreased with patient load, also independently of the delivery model there was a linear relationship, such that each additional 1000 patients was associated with a 3% drop in the score.

The reasons for improved outcomes associated with nurse practitioner involvement are postulated to include that they may help ease physician workload through taking over some duties usually performed by physicians, and they may affect performance through their involvement inorganised care management activities,

such as diabetes clinics. This suggests that the benefit of nurse practitioners and other mid-level providers is not as replacements for primary care physicians but rather as members of the primary care team. Their role as frontline providers should be vital in a team that is supported by properly trained family physicians.

The research offers hope that high-quality chronic disease management is achievable in our many contexts in Africa, but it does require greater input from appropriately structured and trained primary care teams.

### Obesity in children

Obesity is increasing worldwide, and children are not immune to this; the World Health Organization (WHO) estimates that 22 million children under 5 years old are overweight.<sup>5</sup>

When one thinks of nutritional problems in Africa, images come to mind of marasmic children from the famine-stricken regions of our continent. Obesity is not the first thought that usually comes to mind. However, the problems of Western diets and affluence are growing rapidly in Africa, as seen in the rise in chronic illness burden already discussed. Obesity is an important component of this. One has only to look around in the major cities in Africa to become aware of the importance of this growing issue (pun intended). It is of particular concern that obesity is being seen more and more commonly in children, and not only in adults, as they adopt more sedentary Western practices.

It is quite likely that it is not only urban areas that are affected. A recent article from rural Appalachia in the USA reported that, consistent with expectations from other studies, the prevalence of overweight rural Appalachian children, aged 6–11 years, exceeded national averages;<sup>6</sup> boys were found to be particularly vulnerable to developing obesity. In fact, a recent Greek study found childhood obesity to be more prevalent in rural than urban Greece.<sup>7</sup>

An important concern is the consequences of this obesity. We are all aware of the long-term consequences in terms of chronic illness – the Greek study cited above found increases in blood pressure already in childhood,<sup>7</sup> although a study from rural Ghana found no increase in average blood pressure amongst an adult population.<sup>8</sup> However, a recent study in the context of Dutch family practice has indicated there are more immediate consequences of obesity, particularly in terms of musculoskeletal problems.<sup>9</sup>

Researchers from Rotterdam and Utrecht investigated 2459 children aged 2 to 17 years from Dutch family practices. They collected data on height and weight (body mass index), self-reported musculoskeletal problems in the 2 weeks before an interview, and number of family physician consultations for musculoskeletal problems in 1 year. They found that overweight and obese children reported significantly more musculoskeletal problems than normal-weight children (odds ratio (OR) 1.31; 95% confidence interval (CI), 0.98–1.74). The overweight or obese children reported lower extremity problems (OR = 1.62; 95% CI, 1.09–2.41), reported more ankle and foot problems (OR = 1.92; 95% CI, 1.15–3.20), and consulted their family physicians

more often with lower extremity problems (OR = 1.92; 95% CI, 1.05–3.51) than the normal-weight children.

The authors suggest two possible scenarios contributing to the problem. Firstly, normal-weight children with musculoskeletal problems may be less active and therefore may become overweight. Secondly, musculoskeletal problems can prevent overweight and obese patients from successfully using exercise to reduce body weight. It is certainly quite likely that there is a vicious cycle in which being overweight, musculoskeletal problems, and a low fitness level all serve to exacerbate the problem.

There are at least three important practical implications for practice in Africa. Firstly, children who present with musculoskeletal problems should be taken seriously, thoroughly assessed, and given appropriate treatment to minimise these problems and to ensure return to full fitness as soon as possible. These children should be encouraged to exercise as much as possible within the constraints of their affliction, and should be advised about possible negative consequences of failing to do so. Secondly, the clinician should use every opportunity that presents to stress the importance to patients – including children – of regular exercise and healthy eating. Parents should be educated about the consequences of inactivity, junk food, and other negative lifestyle trends. Thirdly, at a community level, awareness campaigns and programmes which encourage children to be active in sports should be supported and encouraged. In the forthcoming year, as the FIFA World Cup comes to Africa, it is a good time to be promoting this message.

### Patient beliefs

All practitioners, and especially family physicians and other primary care workers, should be aware of the importance of understanding patients' beliefs about any interventions that are being recommended to them – whether these are individual (personal) or group (cultural) belief systems. Such comprehension is essential for collaborative management and for adherence to treatment.

Three recent articles, all published in open-source on-line African journals, bring this issue into fresh perspective.

Ndwamato and Ogunbanjo sought to understand the beliefs and practices of multiparous Tshivenda women regarding the use of contraceptives, in Limpopo province, South Africa.<sup>10</sup> Focus group interviews were conducted involving women from five different groups, namely a community health support group, a social club organised around financial support, an international Christian church denomination, a South African 'traditional' church, and traditional healers.

The authors found that women in all the groups were aware of various contraceptive methods and had experience of some of the methods, but their beliefs about them varied. Women from the traditional church and healers groups did not believe in modern contraceptives, and discouraged their use. The other three groups believed in and used modern contraceptive methods, describing reasons for not using them related to their

side-effects. However, amongst all the groups there were commonly held beliefs about these methods, such as that they cause or contribute to infertility, cause decreased libido leading to negative effects on marriages, and cause diseases or body changes – even in partners and in future children.

Thus beliefs based on religious and traditional practices influence the use of contraception in certain social groups, while perceptions about the effects must be addressed by practitioners involved in giving contraceptive advice. The authors conclude their study by arguing that family planning programmes need to be structured in such a way that the views of women in any particular community are considered.<sup>10</sup>

Kendall-Taylor et al looked at the issue of beliefs as they effect epilepsy treatment, but from a different perspective, namely an ethnographic examination of factors that affect the choice of families in Kilifi district, Kenya, between traditional healing and biomedical care for childhood epilepsy.<sup>11</sup> Intensive data collection – through observation and interviews – took place over more than 2 years, involving 8 traditional healers and 12 biomedical health workers. As was the case in other studies in Africa, the researchers found traditional healers to be an important option for treatment of childhood epilepsy, and that this relates to the extent to which a family's beliefs about epilepsy causation correspond to their traditional belief systems. What is particularly significant was their finding that families were willing to travel long distances for either biomedical or traditional treatment options, suggesting that factors other than distance were responsible, such as congruence between a family's beliefs of causation and the methods employed in treatment.

Furthermore, their research revealed several characteristics that distinguished the two treatment options, which may be enlightening for primary care physicians. In contrast to traditional healers, doctors seldom explained the causation and treatment of the epilepsy, and communication was limited, even strained. Traditional healers were seen to be involved and located in the local communities, whereas biomedical practitioners were removed from them. The latter had rigid payment systems whereas the former were more flexible. These characteristic of traditional healers provide an important challenge to biomedical practitioners in terms of the way we practice, particularly our communication skills.

In the third article, Mbagaya examined child feeding practices in a rural Western Kenya community.<sup>12</sup> The reason behind the study was the author's sense that, despite the WHO recommendation for exclusive breastfeeding (EB) from birth to 6 months, complementary feeding (CF) practices were still common. The study describes feeding practices of children aged 0 to 24 months in the Kakamega district in Kenya, based on interviews with 180 mothers. The researcher found that, although 92% of the children were breastfed, only 12% of the mothers practiced EB up to 4–6 months. Reasons for complementary feeding included the age of the child, another pregnancy, insufficient milk, and sickness of the mother or child. The majority of mothers obtained information on feeding practices from friends and

neighbours (53%), rather than from media advertisements (24%), and health workers (15%). In the context of the HIV/AIDS pandemic, it is crucial that mothers have the correct information about feeding practices, in order to make informed decisions, but this study indicates that health workers and even the media are not currently effective routes for changing peoples' beliefs and practices. Programmes involving community-based workers, community support groups, peer educators, and motivational interviewing techniques all need to be explored. At the same time this does not let us off the hook as practitioners: we need to be sure we are consistently and repeatedly providing a clear message to communities about feeding practices – our practices in that regard still leave a lot to be desired!

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