



Use of complementary medicines among HIV-infected children in Lagos, Nigeria



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A B S T R A C T

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Background: Complementary medicine (CM) use is common among children with chronic illnesses such as epilepsy and asthma. Lack of data on the profile of CM use among children with human immunodeficiency virus (HIV) infection necessitated this study.

Methods: Parents or caregivers of HIV-infected children attending the paediatric HIV-clinic in a teaching hospital in Lagos, Nigeria, were randomly selected and interviewed with a semi-structured (open- and close-ended) questionnaire. Clinical details of the patients were extracted from their case files.

Results: A total of 187 parents/caregivers were interviewed. Most of the parents/caregivers (181; 96.8%) have used CMs for their children. Mind-body interventions (181; 36.6%) and biological products (179; 36.2%) were frequently used. Relatives, friends and neighbours influenced CM use in 37.1% of the children. CMs were used mostly to treat weight loss (79; 43.7%), cold (40; 22.1%), and fever (39; 21.6%).

Conclusion: CM use is common among HIV-infected children in Lagos.

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1. Introduction

Human immunodeficiency virus (HIV) infection is a global public health problem [1]. The virus gradually attacks, and damages or destroys the cells of the immune system, leaving them unable to fight infections and predispose them to certain malignancies such as lymphomas and Kaposi sarcoma [2]. Acquired Immune Deficiency Syndrome (AIDS) is the final stage of HIV infection. At this stage, the immune systems of an individual living with HIV infection are badly damaged. Such an individual is at risk for opportunistic infections (OIs), malignancies, or a very low CD4+ cell count [2,3].

The World Health Organization (WHO) and Joint United Nations Programme on HIV/AIDS (UNAIDS) have reported a global increase in the number of children (below 15 years old) living with HIV from 1.6 million in 2001 to 2.1 million in 2008 [4,5]. The majority (90%) of these children live in sub-Saharan Africa. Globally, in 2008, an estimated 430,000 new infections occurred in children [6], of which 90% were acquired during pregnancy through mother-to-child transmission (MTCT) of HIV. It is estimated that, of the 430,000 new infections, between 50% and 75% were acquired

during labour and in the peri-partum period. Of the remaining new infections, the majority were acquired through breastfeeding [6]. In 2008, about 280,000 children were reported to have died of AIDS [5,6]. However, the use of preventive treatment regimens has significantly decreased the incidence of mother-to-child HIV transmission. Globally, in 2009, an estimated 370,000 children contracted HIV during the perinatal and breastfeeding period, compared to the 500,000 infected in 2001 [7].

Many HIV-infected children are diagnosed through high index of suspicion on account of the disease being present in their mothers. However, the infection may not be suspected until a child develops some symptoms which may vary by age and individual child. Among the common symptoms in children are failure to gain weight or grow according to the World Health Organization standardized growth charts; failure to reach developmental milestones during the expected time frame; brain or nervous system problems which may be characterized by seizures, difficulty with walking, or poor performance in school [8]. In addition, children may present with recurrent bacterial infections, unremitting fever, protracted diarrhoea, recalcitrant thrush, recurrent pneumonia, chronic parotitis, generalized lymphadenopathy, and significant pruritic dermatoses [8]. Mucocutaneous eruptions may be the first sign of HIV infection in children and may vary in presentation, depending on the immune status of the child [9].

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As HIV infection becomes more advanced, children start to develop opportunistic infections such as pneumocystis pneumonia, lymphocytic interstitial pneumonitis, and candida or yeast infections. These are infections that rarely affect healthy people but can be deadly for people whose immune systems have been compromised [8].

Antiretroviral therapy (ART) is the current mainstay of treatment of HIV/AIDS. Before the advent of ART, people living with HIV easily progressed to AIDS with an associated high mortality [9]. ART involves the use of a combination of antiretroviral (ARV) drugs to fight the HIV virus from a variety of positions within the cell [10]. HIV-infected infants and children now survive to adolescence and adulthood following early initiation of ART [11]. In addition to ART, therapy for specific infections and malignancies are essential in treating HIV-infected persons. Nucleoside or nucleotide reverse transcriptase inhibitors (NRTIs), protease inhibitors (PIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), fusion inhibitors, CCR5 co-receptor antagonists (entry inhibitors), and HIV integrase strand transfer inhibitors are the classes of ARV drugs presently in use [9]. At least three drugs from at least two classes of the ARV drugs is recommended for initial treatment of infected infants, children, and adolescents because it provides the best opportunity to preserve immune function and delay disease progression [12]. Drug combinations for initial therapy in ART-naive children include two NRTIs plus one NNRTI or one PI [9].

Worldwide, over 4 million adults and children are now on antiretroviral therapy (ART), but the scaling up of ART has met with less success in infants and very young children as compared with that in older children [13]. Currently, in the majority of children, ART is initiated in those who have developed serious illness as a result of advanced HIV infection (AIDS), and at an average age of approximately five years. Those who are unable to access ART may be compelled to use alternative therapies. Even among those using ART, antiretroviral drugs may be responsible for a wide range of toxicities, ranging from low-grade intolerance to life-threatening side-effects [9]. In addition, lack of cure and preventive vaccine for HIV/AIDS have prompted some patients to use complementary medicines or seek alternative therapies, particularly the herbal remedies [14,15]. The safety of herbal remedies has been a major public health concern especially when the active constituents of the products have not been characterised.

Complementary and alternative medicine, according to the National Centre for Complementary and Alternative Medicine (NCCAM), are the treatments and healthcare practices that are not integral part of conventional western medicine, not taught in medical schools, and not generally used in hospitals [16]. Complementary medicine is used together with conventional medicine, while alternative medicine is used in place of conventional medicine. However, these terminologies were not clearly defined in most studies that have evaluated CAM use among HIV-infected patients [17–23]. This probably accounted for a variation in the prevalence of use of complementary or alternative medicine among HIV infected people reported in the literature [15,17–23].

Data are lacking on the use of CM in HIV-infected children. However, one study has documented a prevalence of 22% among HIV-infected children in the United States [17]. In HIV-infected patients, CM are used to improve the general health [18], to prevent opportunistic infections [10,19], to treat symptoms such as pain and stress, depressed immunity, diarrhoea, cough, nausea and vomiting [19,20], or to reduce the side-effects of ART [10]. However, the safety, efficacy, quality and standardization of the CMs have not been evaluated [24]. Adverse effects of CM have been reported among a general paediatric population [21] and include multiple pharmacologic interactions with prescription medicines [25], anaphylaxis, renal failure, malignancies and death [25,26].

Complementary medicines are quite expensive and the costs are not covered by the national health insurance in most countries. More than 80% of the parents of HIV-infected children surveyed in the USA were responsible for the cost of CM use for their children [17]. In Canada, out-of-pocket costs of CM ranged from no cost to more than CAD\$250 per month [22], while in South Africa, between £4 and £27 was expended per month on traditional medicines by HIV/AIDS patients [27].

The specific pharmacokinetic and pharmacodynamic interactions between CM and ARV drugs rarely have been evaluated, leaving the overall consequences of their co-administration largely unknown. Herbal medicines are the most frequently used CM among HIV-infected patients in Africa [19,26] and the USA [23]. African potato (*Hypoxis hemerocallidea*) and *Sutherlandia*, currently being evaluated for HIV treatment in South Africa, are potential inhibitors of ARV drug metabolism and transportation [28]. St John's wort (*Hypericum perforatum*) has been used as an herbal antidepressant [29] and is known to adversely interact with indinavir by reducing its plasma level [30]. Similarly, large doses of garlic (*Allium sativum*) are known to reduce the plasma level of saquinavir [31]. Consequently, concomitant use of herbal CM and ARV drugs may result in a significantly reduced plasma level and reduced efficacy of ARV drugs.

Given the dearth of information on the profile of CM use among HIV-infected children, this study aimed to determine the prevalence, pattern of use, parental sources of information, perceived benefits, cost, and adverse effects of CM among HIV-infected children in Lagos, Nigeria as well as the types of ARV and co-prescribed drugs used with CMs in the HIV-infected children.

2. Material and method

2.1. Setting

HIV-infected children with documented confirmatory results in the case files constituted the study population. We recruited only the subjects who were enrolled on ART at the paediatric HIV/AIDS clinic of the Lagos State University Teaching Hospital (LASUTH), Ikeja, Nigeria. The clinic is held twice weekly (Monday and Thursday) and an average of 25 patients were attended to per clinic visit.

2.2. Study design

This is a cross-sectional study conducted between 1st July and 31st December 2012. The study involved the parents or caregivers of 187 HIV-infected children selected randomly during their consecutive visit to the clinic. A semi-structured questionnaire with open- and close-ended questions, modified from the one previously used to assess the use of CMs among children with chronic illnesses in Lagos; Nigeria [32] was the instrument for this study. The semi-structured questionnaire was developed to obtain the following information: demography of both the parents/caregivers and their HIV-infected children, and the type of CM, if any, used by the patient. Information was also obtained on the sources, cost, perceived benefits and adverse effects of the CM used.

The part of the questionnaire seeking information about use of CM requires the respondents to respond to questions such as whether or not the child had ever used CM for HIV/AIDS, and whether or not the child was currently using CM. Where CM is currently used, we sought if it was regularly used with ARV drugs. Among those who had ever used CM, we sought if they had stopped in the last six months. They were also required to choose the type(s) of CM used from a pre-determined list which included biological

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