Journal of Clinical Toxicology
ISSN: 2161-0495

Ibeh et al., J Clinic Toxicol 2013, S:12
DOI: 10.4172/2161-0495.S12-004

Short Communication Open Access

Evaluation of the Anti-Human Immunodeficiency Virus (Hiv) Properties Of Dxl (Decoction X-Liquid-Bioclean Ii)

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Abstract

The Acquired Immunodeficiency Syndrome (AIDS) Pandemic continues to inflict heavy death toll on human population worldwide with no cure yet documented. The burden of the disease remains highest in the least developed nations of the world where some of the chemotherapeutic agents already developed to combat the disease may be very scarce or not affordable; thus, creating the need for search for a definitive cure which must be cheap and affordable. The present study was on a herbal remedy called *DXL* (Decoction X-Liquid) which was evaluated for its anti-human immunodeficiency virus potential by administering it to HIV positive cases (n=5) over a period of 30 days. The dosage was chosen by referring to the Lethal Dose Fifty (LD_{50}) established elsewhere in another study. The HIV positive individuals exposed to DXL experienced ceasation of constant frontal headaches, intense internal heat and muscular wasting within 14 days and progressing to a body weight gain of 5.5 kg and an almost doubling of the CD_4T-Cells number from 532.17 + 15.05 cells / ml to 932.73 + 15.05 cells / ml at the end of 30 days. Exposure to DXL also enhanced mean cell haemoglobin in the HIV positive individuals. The mechanism of action of DXL may include stoppage of CD_4 T-Cells destruction and restoration of normal metabolic activities in an HIV infected person. These findings suggest that DXL may be an intervention tool in the cycle of HIV infection.

Keywords: AIDS; HIV; DXL; Intervention tool

Introduction

The Human Immuno-Deficiency Virus (HIV) belongs to the family retroviridae. The viruses in this family are divided into seven groups based on their nucleotide sequences and genomic structures. The medically important human retroviruses are placed in the HTLV - BLV and the lentivirus groups (Human T-Cell Leukaemia Virus - B-Cell Leukaemia Virus).

The HIV exists in two types: Types 1 and 2 (HIV - 1 and HIV - 2); it is the aetiological agent of Acquired Immunodeficiency Syndrome (AIDS) and a lentivirus. Lentiviruses show tropism for haemopoetic and nervous system. They produce infections with long incubation period, followed by a slowly progressive fatal disease. They can cause immunesupression and have the ability to cause cytopathic effects in-vitro (Kahn and Walker, 1998).

Epidemiology

The human immunodeficiency virus occurs worldwide with variations in prevalence in different parts of the world. It is estimated that about 80% of the over 40 million infected people live in Sub-Saharan Africa. Modes of transmission include heterosexual (Africa), homosexual and heterosexual (Europe and America) and parenteral (among intravenous drug users). The latest sentinel survey of sero-prevalence of HIV in Nigeria puts it at 4.1% although it can be as high as 30% or more in certain area [1].

In Africa, all the HIV -1 subtypes and group O strains are present. The predominant subtypes are A, C, D, G and A/G recombinant. Infection by HIV-2 is largely confined to West Africa such as Senegal, Guinea Bissau, Ivory Coast (Cote d'voire), Gambia, Nigeria, etc. The groups that are at a higher risk of infection are Homosexuals, male and female prostitutes, injection drug users, blood transfusion recipients, children born to HIV infected mothers and heterosexual contacts of HIV infected individuals.

The origin of HIV is subject to a lot of controversy. However, several Simian Immunodeficiency Viruses (SIV) have been identified in sub – human primates in the wild. Infected monkeys are asymptomatic. These simian viruses include those from,African Sooty mangabeys (SIVsm), African green monkeys (Sivagm), African mandrills (SIVmnd), Syke's monkeys (SIVsyk) and Rhesus macaques (SIVmac).

Infection of rhesus macaques is captivity by SIV (SIV mac) resulted in AIDS- like disease in the infected animals. SIVmac and SIVsm are similar. SIVmac is suspected to have originated from Cross species transmission of SIVsm. This view suggests that HIV was probably derived from SIV. HIV-2 is closely related to SIVsm. Feline Immunodeficiency Virus (FIV) is similar to HIV. It produces Cytopathic Effect (CPE) when grown in tissues [2].

The HIV infection process and disease manifestation are multi-stage and protein. However, the most common early symptoms include headaches, rise in temperature, sore throat evening chills, dermatological problems and weight loss [3].

Treatment

Concerted efforts have been made to find intervention tools in the cycle of HIV infection and disease, leading to a better understanding

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Received December 18, 2012; **Accepted** May 04, 2013; **Published** May 06, 2013

Citation: Ibeh IN, Akanu N, Mkpa AM, Isitua CC, Ogefere HO (2013) Evaluation of the Anti-Human Immunodeficiency Virus (Hiv) Properties Of Dxl (Decoction X-Liquid-Bioclean Ii). J Clinic Toxicol S12: 004. doi:10.4172/2161-0495.S12-004

of the aetiology, epidemiology, pathogenesis and pathology [2,3]. However, no cure for the disease has been reported although reasonable improvement in its management has been achieved due largely to the introduction of anti-retroviral drugs and food supplements 9 [4]. These drugs and food supplements are very costly and are therefore not easily affordable by the rural poor in Nigeria. Literatures have appeared which suggest that some of the anti-retroviral drugs currently in use are mitochondrial toxic, especially in cardiac tissue [5]. There is, therefore, the need for further search for cure for the HIV/AIDS pandemic. The present study focuses on the evaluation of the anti-HIV potential of Bioclean 2 an herbal formular-tagged DXL that was prepared in Nigeria. DXL is essentially a family medicine against arthritis that has been used successfully over decades in Nigeria. Traditional medicine is well practiced in Nigeria [6].

Materials and Methods

Five age-matched multi-gravidae (Average age=32 years) Human immunodeficiency virus infected females drawn from Special Treatment (Heart-to-Heart) centres in Benin City were treated with DXL, 5ml twice daily for four weeks while equal number of HIV positive females (n=5) who were on food supplements were given 5 ml of pure water twice daily as control. The two groups were observed physically, behaviorally and serologically for haemotology and CD4 T-Cells count.

Haematology

Haematological parameters such as Haemoglobin (HGB), Haemoglobin Concentration (HCT), Mean Cell Haemoglobin (MCH), Mean Corpuscular Haemoglobin Concentration (MCHC), Total Which Blood Cells (TWBC), Lymphocytes (LYM) and Neutrophils (NEUT) were determined using a CBCS coulter counter (Coulter Corporation, Miami, Florida).

CD4T-Cell Count

The CD_4T-cells were counted in whole blood obtained from veinous puncture using the cytoflow SL-3flow cytometer. Briefly, exactly 2.0 ml of CD_4 PE antibody (Roherne tribe) was added into a tube containing 2.0 ml of whole blood and the tube content was mixed gently and incubated in the dark for 15 minutes at room temperature (27+l°C) before adding 800 µl of CD_4 buffer. The tube content was mixed gently before plugging it into the SL-3 flow cytometer for counting, ensuring that the CD_4 cells, monocytesand noise were well separated and gated.

Results

The effects of DXL on the body-weight of the individuals investigated are shown in Table 1. There was a progressive increase in the body weight of females in the DXL treatment group, which showed a weight gain of 5.8 kg within 30 days.

The other physical and behavioral changes observed in the group of individuals investigated are shown in Table 2. Individuals in the DXL-treatment grouptransformed from lean body frame and loose skin to a firmed skin and well-rounded body; from being tensed up and withdrawn to lively relaxed persons within 30 days.

ITEM	GROUPS STUDIED	
Body Weight (kg) at different Times (days)	DXL Treated HIV Case;	Control HIV Cases
0	53.4 ± 0.2	54. ± 0.1
7	55.6 ± 0.1	54.3 ± 0.3
14	57.2 ± 0.3	55.4 ± 0.2
21	58.7 ± 0.2	54.7 ± 0.3
30	59.2 ± 0.1	53.6 ± 0.2

Table 1: The Mean Body Weights of Female Groups Investigated.

ITEM	GROUPS STUDIED	
Observations at different times (days)	DXL Treated HIV Cases	Control HIV Cases
0	Lean, tensed up and withdrawn, loose skin, night frontal headaches (migraine) and intense body heat.	Lean, tensed up and withdrawn; loose skin, night frontal headaches and intense body heat.
7	Less tensed up, reduced migraine and body heat.	No difference from day 0.
14	Tension gone, signs of cheerfulness, migraine and intense body heat disappeared	No difference from day 0.
21	More relaxed, looking well fed, skin texture firmed up.	Tensed up, skin thin and drawn, still looking lean.
30	Lively, significant body weight gain.	No difference from day 21.

Table 2: Physical and Behavioural Observations in the Female Groups Investigated.

ITEM	GROUPS STUDIED	
	DXL Treated HIV Cases	Control HIV Cases
HGB (g/l)	11.32 ± 0.15	11.43 ± 0.12
HCT (%)	33.26 ± 0.46	34.46 ± 0.46
MCV (%)	86.61 ± 0.52	86.56 ± 0.79
MCH (Pg)	29.47 ± 3.21	24.47 ± 3.92
MCHC (g/dl)	31.92 ± 0.12	32.96 ± 0.12
WBC (cells/ml)	5.36 ± 0.26	5.65 ± 0.26
LYM (%)	40.50 ± 0.63	40.50 ± 0.91
NEUT(30%)	46.59 ± 0.89	46.72 ± 0.44
HGB (g/l)	15.32 ± 1.72	11.37 ± 0.16
HCT (%)	37.46 ± 1.03	35.32 ± 0.53
MCV (%)	85.83 ± 0.48	86.93 ± 0,32
MCH (Pg)	43.16 ± 1.24	29.34 ± 2.71
MCHC(g/d)	35.26 ± 0.36	32.18 ± 0.42
WBC (celis/ml)	6.08 ± 1.21	5.35 ± 0.81
LYM (%)	40.87 ± 1.06	40.76 ± 1.21
NEUT(%)	45.34 ± 1.41	46.37 ± 1.04

HGB = Haemoglobin; HCT = Haematocrit Value; MCV = Mean Cell Volume; MCH = Mean Cell Haemoglobin; MCHC = Mean Cell Haemoglobin Concentration; WBC= White Blood Cells; LYM = Lymphocytes; NEUT=Neutrophils

Table 3: Hematological Observations in Female Groups Investigated.

The effects of DXL exposure on cells and tissues of HIV positive cases are shown in Table 3. There was a significant increase in the mean cell haemoglobin(MCH) of individuals in the DXL-treatment Group ($P<0.01$).

Table 4 shows the effect of DXL exposure on the CD_4 T-Cells of individuals investigated. There was a progressive increase in CD_4 T-Cells in the DXL-treatment group, attaining a mean value of 932-73 ± 15.05 cells / ml from the initial 532.17 + 15.05 after 30 days interval.

Discussion

Studies elsewhere had established the lethal dose fifty (LD_{50}) of the herbal preparation DXL and with that the dosage used in the present study was chosen. The results showed an increase in the body weight of individuals administered with DXL (Table 1). The increase in body weight was statistically significant when compared with the control group ($P<0.05$). The observed positive change in the bodyweight may

ITEM	GROUPS INVESTIGATED		
	DXL Treated HIV Cases	Control HIV Cases	P. value
CD4T-Cells Count (cells/ml) at			
Day 0	532.17 ± 15.05	538.66 ± 14. 60	P<0.05
Day7	538.26 ± 2.71	527.81 ± 16.07	P<0.05
Day 14	638.25 ± 15.08	539.26 ± 13.08	P<0.05
Day 21	747.36 ± 14.07	532.25 ±12.71	P<0.01
Day 30	932.73 ± 15.05	536.44 ± 5. 32	P<0-01

Table 4: CDT_4 Cells Count in the Female Groups Investigated.

be because of the ability of DXL to restore normal metabolic balance in the individuals concerned. This view is not at variance with trends in metabolic activities and nutrition in mammal [7].

There were other changes noticed in the DXL-treated HIV positive group of individuals (Table 2) which may be direct consequences of the ability of the product to quickly reverse the processes initiated by HIV infection. It is already known that the virus causes cellular destruction and products of such effete cells may be pyrogenic thus, causing among other things, rise in temperature and headaches [8,9]. In which case, stoppage of cells destruction, which usually accompanies viral replication [10], may relieve all associated symptoms in an infected individual.

The cellular effects of DXL in the individuals exposed to it include significant increase (P<O.01) in mean cell haemoglobin (Table 3). This finding suggests that the product improves the respiratory value of erythrocytes.

This view agrees with the existing knowledge on the functions of blood tissue [11]. There was a progressive increase in CD_4 T-Cells in the DXL-exposed HIV positive cases (Table 4). The increase in CD_4T-cells in DXI-exposed group was significant (P<0.01). This finding may be related to the ability of DXL to stop T-Cells destruction or stimulate the proliferation of this sub-set of cells or both. This is animportant observation because of its implication in the restoration of denuded immunity associated with HIV infection and progression to AIDS.

Although a lot of work still needs to be done, the preliminary findings reported here are encouraging. Further studies are going on which will address the grey areas in our quest to ascertain the usefulness or otherwise of DXL as an intervention tool in the cycle of HIV infection and the AIDS pandemic.

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