

Effective Treatment of HIV/AIDS with the *Medicinal Synthetic Aluminum-Magnesium Silicate*:



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Abstract

Aim: To treat patients at the two stages of HIV-infection with the *Medicinal synthetic Aluminum-magnesium silicate* (MSAMS, Antivirt®) and Immunace® Extra Protection.

Methodology: Five HIV-patients classified as HIV-positive (CD4 \geq 500) and 5 others classified as HIV/AIDS (CD4 <500) were treated. Each patient was treated, daily, with Antivirt® (50mg/kg) and Immunace® Extra Protection (1 tablet). They were tested before treatment and every month, for viral loads and CD4 counts.

Results: Mean CD4 counts of the HIV-positive patients (663.60 \pm 45.43) was higher (P=0.00) than that of HIV/AIDS patients (330.00 \pm 32.01) but the two means, before they recovered (1461.78 \pm 339.84 and 1400.00 \pm 301.30) became approximately same (P=0.89). Both HIV antigens and antibodies regressed, completely, in HIV-positive patients after 8.40 \pm 0.24 months while it took 10.00 \pm 0.00 months before HIV/AIDS patients tested negative (P=0.00). Symptoms were observed among HIV/AIDS patients but HIV-positives remained apparently healthy.

Conclusion: Synergy between MSAMS-*Nanoparticles*' antiviral effects and proliferation of CD4s cures both HIV-positive and HIV/AIDS stages of the infection.

Keywords

MSAMS (Nanoparticles,Silicate); CD4- Lymphocytes Proliferation; HIV-Positive; HIV/AIDS became Antigen-Negative

1. Introduction

Range of CD4-lymphocytes counts in healthy persons is 500-1,500 [1] but in *Human immune deficiency virus* (HIV)-infected people, CD4-lymphocytes often reduce below 500/ml (immune deficiency). That is why, the disease is called acquired immune deficiency syndrome (HIV/AIDS).

Reason HIV/AIDS has remained incurable is a combination of small size (110 nm) of HIV [2] which enables

it cross physiological barriers to “hide” in some cells found in the brain, bone marrow and testes, which antiretroviral

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medicines of big molecular sizes do not reach and the fact that the infection requires prolonged treatment and causes immune deficiency.

Medicines that suppress biochemistry of viruses are not good for prolonged treatments, because similarity between biochemistry of viruses and biochemistry of human cells makes such medicines toxic to patients. Yet existing medicines that work by physical effects can not complete elimination of HIV-infections because HIV depletes lymphocytes which they need to clear infections from organs, inaccessible to them. That is reason HIV-infections in those organs are said to be in “sanctuary” (safety).

Nanoparticles that form molecules of Aluminum-magnesium silicate (AMS) are much smaller (0.96 nm thick) than HIV [3]. So, they cross physiological barriers and are able to get to all HIV-infected organs/tissues. Their edges are positively charged and their surfaces negatively charged while HIV is positively charged [4] and abnormal (infected/cancer) cells, negatively charged [5]. So, the AMS-*Nanoparticles* mop HIV from all organs, with their surfaces and adsorb onto infected cells with their edges. Infected cells so adsorbed are destroyed by the mechanism AMS traditionally disintegrates drug-capsules in pharmaceutical formulations [3]. Therefore, intracellular HIV infections are unmasked and mopped out.

Silicates enhance immune responses [6]. Also, in pathogenesis of HIV, increases in CD4 counts lead to reductions in population of the virus [7]. So, synergy between antiviral effects of the AMS-*Nanoparticles* and increased lymphocytes' populations continuously depletes number of HIV particles. When 100% of population of invading-HIV is cleared, the infection terminates.

There are no deposits of AMS $\{Al_2Mg_3(SiO_4)_3\}$, as natural mineral resource, in Nigeria but the country has large deposits of Aluminum silicate $\{Al_4(SiO_4)_3\}$ and Magnesium silicate $\{Mg_2SiO_4\}$. These minerals are already in use as medicines, for treatment of animal and human diseases [8]. So, the two medicinal minerals were reacted [9]: $\{Al_4(SiO_4)_3 + 3Mg_2SiO_4 \rightarrow 2Al_2Mg_3(SiO_4)_3\}$ to synthesize medicinal grade of AMS. Since AMS is not well absorbed in the gastro-intestinal tract, Dextrose monohydrate was formulated with the **Medicinal synthetic Aluminum-magnesium silicate (MSAMS, Antivirt®)**, to convey the *Nanoparticles*, by active transport [10] across mucous membranes of the GIT, into blood which carries them to all organs/tissues.

That the **MSAMS** inhibits HIV, *in vitro*, has

already been reported [11]. It has also been reported to cure animals challenged with *Paramyxoviridae*, *Parvoviridae* and *Birnaviridae* viruses [12-14]. One month after proliferation of CD4s occurred, HIV-patients treated with it, tested HIV-negative [15-18].

Recoveries from HIV infections already reported were due to synergy between antiretroviral effects of the MSAMS and proliferation of CD4s [17-18]. Treatment-durations before proliferation of CD4s may vary between patients, depending on stages of their infections before the treatment. So, it was deemed necessary to compare outcome of the MSAMS treatment in HIV infected patients whose CD4 counts are still normal (≥ 500) with the outcome in patients whose immune responses have started failing (CD4 < 500).

2. Materials and Methods

For the *in vivo* study, a formulation of the MSAMS and Ampicillin trihydrate (**Antivirt® A**) and a formulation of the MSAMS alone (Antivirt® B) were made.

Ten patients who volunteered for the trial applied for the medicine through their personal physicians. They were classified into two groups of 5 HIV-positive patients (CD4 ≥ 500) and 5 HIV/AIDS patients (CD4 < 500) based on their pre-treatment CD4-lymphocytes counts [7]. Each patient was treated and cared for, by his/her personal physician. The treatment was by oral medication, with **Antivirt® A** for one month, at dose rates of 50 mg of the **MSAMS/kg** and 7.5 mg of **MSAMS-stabilized Ampicillin trihydrate/kg**, daily. Thereafter, they were on Antivirt® B, at dose of 50 mg/kg, daily, till they tested HIV-negative. To further enhance their immune responses, they were also treated, each day, with 1 tablet of immanence extra protection® (Vitabiotics, India).

Their blood samples were tested for copies of HIV-RNA/ml (viral loads) and for CD4-lymphocytes counts, before the treatment and every month. Means of the viral loads and CD4 counts, for each group were calculated, every month. When a patient's viral load became undetectable, he/she was tested for HIV-status by both the antibody test and by the antigen test. Treatment-duration before he/she tested HIV-negative was recorded.

Means of treatment-durations before recovery in the two groups, rates of reduction in their viral loads following the treatment and means of CD4-lymphocytes counts in the months all members became HIV-negative for each of the two groups were compared for statistical differences, by the *Students T-test*.

3. Results and Discussion

3.1. Results

Symptoms, including exercise intolerance, fever, dermatitis, multiple boils, joint pain, stomatitis, sore throat, emaciation and diarrhea were observed among the HIV/AIDS group but the HIV-positive patients were apparently healthy. All those symptoms ceased after two months treatment-duration.

Pre-treatment mean-CD4 counts (Table 1) of the HIV-positive patients (663.60±45.43) was higher (P=0.00) than pre-treatment mean-CD4 counts of the HIV/AIDS patients (330.00±32.01) but monthly means of CD4 counts of the two groups (Table 3) before their recovery (1461.78±339.84 and 1400.00±301.30) became approximately same (P=0.89). Also, mean viral load reduction-rate (Table 3) of the HIV-positive patients (62.99±6.05) was higher(P=0.03) than mean viral load reduction-rate of the HIV/AIDS patients(46.67±2.63) but after additional one month treatment, mean of viral load reduction-rate of the HIV/AIDS patients(52.59±6.34)

approximated that attained earlier by the HIV-positive group (P=0.26).

Table 1: Pre-Treatment CD4-Lymphocytes Counts and Viral Loads of HIV-Positive and HIV/AIDS Patients

HIV-positives patients		HIV/AIDS patients	
CD4	VL	CD4	VL
789	895	300	2830
628	1052	270	3359
550	1630	450	1565
601	1126	340	1998
750	1056	290	2692
MEAN= 663.60±45.43	MEAN= 1151.80±125.39	MEAN= 330.00±32.01	MEAN= 2488.80±316.96

Treatment-duration (8.40±0.24 months) before all the HIV-positive patients tested HIV negative (antigen and antibodies) was shorter (P=0.00) than 10.00 ±0.00 months` treatment-duration before all the HIV/AIDS patients tested negative (Table 2).

Table 2: Duration (Months) Before HIV-Positive Patients and HIV/ AIDS Patients, Treated with AntivirtÂ®, Tested HIV-Negative

HIV-positive patients	HIV/AIDS patients
8	10
8	10
8	10
9	10
9	10
MEAN = 8.40±0.24	MEAN = 10.00±0.00

Table 3: CD4-Lymphocytes Counts and Viral Load Reduction-Rates(%) in HIV-Positive and HIV/AIDS Patients, Treated with the AntivirtÂ®

Months	HIV-positive		HIV/AIDS	
	CD4	VL reduction-rates	CD4	VL reduction-rates
1	318	-88.27	210	- 47.13
2	573	50.31	443	40.86
3	749	50.66	637	52.71
4	910	52.20	781	51.17
5	1091	54.36	824	36.99
6	1537	56.16	1537	48.17
7	1886	66.27	1963	59.27
8	3222	73.94	2192	42.61
9	2870	100.00	2420	41.54
10			2993	100
MEAN±SEM	1461.78±339.84	62.99±6.05	1223.00±272.60 1400.00± 301.30	46.67±2.63(Month-9) 52.59±6.34(Month-10)

3.2. Discussion

That symptoms observed in the HIV/AIDS patients ceased, few months after commencement of the treatment may be due to enhancement of antimicrobial efficacy of Ampicillin trihydrate, in Antivirt A® drug formulation, by the MSAMS [19]. The highly increased population of T-lymphocytes (CD4) may also have improved immune responses of the patients, against secondary infections responsible for those symptoms.

Increase in viral loads in both HIV-positive patients and HIV/AIDS patients, in first month of the treatment, instead of reducing may be due to destruction of infected cells by the Antivirt® *Nanoparticles* [3], [19]. HIV particles that were intracellular (“hidden-infections”) may have thus become unmasked and were detected by the viral load test. Reductions in means of CD4 counts in the two groups, that first month, support the suggestion that MSAMS-*Nanoparticles* destroy infected cells (including infected CD4-lymphocytes).

Since viral loads of the group of HIV-positive patients increased by as much as 88.27% (-88.27 viral load reduction) while only 47.13% increment (-44.13 viral load reduction) occurred in the HIV/AIDS group, it proves that HIV-positive patients have higher immune levels than HIV/AIDS patients. More infections may have been encapsulated in the HIV-positive group than infections encapsulated in the HIV/AIDS group.

Higher immune levels in HIV-positive group than in HIV/AIDS group explains manifestation of symptoms in HIV/AIDS patients while HIV-positive patients remained apparently healthy.

That pre-treatment mean-CD4 count of the HIV-positive group (663.60 ± 45.43) was still above lower limit for healthy persons (500/ml) indicate that HIV-infected persons may still be immune competent. That also explains lack of symptoms in the group. Proliferation of CD4 lymphocytes which climaxed (2870) in the HIV-positive group after treatment for 9 months and in the HIV/AIDS group (2993) after 10 months shows that the treatment restores normal immune response against viral infections (lymphocytosis) in HIV-infected individuals, including those who are already at AIDS stage [20].

The proliferation of CD4s and ability of the medicine (*Nanoparticles*) to reach every organ/tissue, to mop viruses, means there would be no hiding place (“sanctuary”) for HIV, in patients treated with Antivirt®-immune stimulants regimen. This may be reason patients in both groups became HIV-negative immediately

proliferation of CD4s occurred. Synergy, between antiviral effects of the *Nanoparticles* and immunity, may be mechanism of the Antivirt®- immune stimulants regimen for effective treatment of HIV/AIDS disease.

When mean-CD4 counts of the HIV-positive group was higher, their mean-rate of viral load reduction was similarly higher ($P=0.03$) than mean-rate of viral load reduction of the HIV/AIDS patients. At respective treatment durations (9 months and 10 months) when means of CD4 counts of the two groups became approximately same their viral load-reduction rates (62.99 ± 6.05 and 52.59 ± 6.34) also became approximately same ($P=0.26$). This suggests that rates of clearance of HIV-infections from patients treated with the regimen depend on rates of proliferation of their CD4-lymphocytes. So, lymphocyte counts can be used to monitor out-comes of the treatment.

Since status of HIV-patients changed from positive to negative (both by the antigen confirmatory test and by the antibody test), the treatment was effective in HIV-positive patients as well as in HIV/AIDS patients. If there were still “hidden HIV-infections” the antigens would have persisted.

What made HIV-disease incurable is ability of the virus to “hide” in cells that medicines do not reach [21]. Since the disease causes lymphopenia there was not enough immunity to clear infections from the “sanctuary cells”. With Antivirt®, the MSAMS-*Nanoparticles* [3] cross physiological barriers, to reach every organ/tissue. They use their surfaces to mop HIV and use their edges to destroy HIV-infected cells. They also elicit proliferation of CD4s hence the 100% recovery recorded in both the HIV-positive group and in the HIV/AIDS group.

The 1.60 months` delay before proliferation of CD4s and recovery in the HIV/AIDS patients is only a reflection of stage of the disease before treatment. Early treatment of HIV patients and use of stronger immune stimulants may elicit proliferation of CD4s earlier and so shorten the treatment duration.

Conclusion

MSAMS-*Nanoparticles* mop-out extracellular HIV and destroy HIV-infected cells to unmask “hidden infections” so that even the intracellular infections are also mopped out. The regimen (silicate, vitamins and minerals) also elicits proliferation of CD4s. Synergy between antiviral effects of the *Nanoparticles* and proliferation of CD4s leads to recovery of both HIV-positive patients and HIV/AIDS patients. Patients who are only HIV-positive

recover earlier than those whose immune systems have already started failing.

Consent

Each patient gave his/her consent for the clinical trial, to his/her physician.

Ethical Approval

The authors hereby declare that the clinical trial was carried out in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki, as, operational in Nigeria.

Competing Interests

The authors declare that no competing interests exist.

Authors contributions

Author, MCOE synthesized the MSAMS and designed the study while authors DA, NKA and TNO administered the treatment and managed the patients. Authors IJO, EK and NUN analyzed the data and processed the manuscript for publication. All the authors read and approved the final manuscript.

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