

Case Report

Effect of Lithium Carbonate in HIV-Infected Patients

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Received: August 05, 2014; Accepted: August 16, 2014;

Published: August 18, 2014

Introduction

The presence of a strong relationship between HIV infection and psychiatric disorders has been well established. This co morbidity is due to several reasons, mainly the action of the virus on the brain, in addition to stigmatization, and coping with a serious medical illness. The prevalence of bipolar disorder can be as high as 78% in HIV patients [1].

Despite the current trend in favor of atypical antipsychotics in the armamentarium of bipolar disorders [2] lithium is still considered as a first line agent [3]. It has been known that lithium stimulates pluripotent stem cell and improves neutropenia [4].

HIV binds to helper T cells and leads to a low level of CD4 T cells by direct viral killing of infected cells, increased rate of apoptosis, or cytotoxic lymphocytes destruction of infected CD4 cells. It has been recently found that lithium could stimulate CD4 T cell production in HIV infected patients [3].

Case 1

A 30-year-old, HIV, homosexual male presented to a psychiatric office after having a 4 weeks history of low mood, lack of interest, and suicidal thoughts.

The patient was diagnosed with HIV four years earlier, and consequently received appropriate medical care, including highly active antiretroviral therapy. His current regimen comprised the following range of drugs: lamivudine 150 mg twice daily, tenofovir disoproxil fumarate 300 mg once daily, and efavirenz 600 mg once daily.

However, the patient psychiatric history had begun earlier. At the age of 22 he was diagnosed with depression by his primary care physician and well responded to sertraline 50 mg once daily for a period of 12 months.

Table 1: Summary of the T-cell count:

	Before lithium	After lithium
CD4	303 cells/mm ³	675 cells/mm ³
CD8	306 cells/mm ³	667 cells/mm ³
CD4/CD8	0.99 cells/mm ³	1.01 cells/mm ³

The patient mentions that at the age of 24 he experienced a state of euphoric mood for a short period of time, during which he had multiple unprotected sexual affairs. This he believes was the underlying cause of his acquiring the infection.

Around the age of 29, the patient psychological state started to deteriorate, revealing increased anxiety, progressively affecting his social and occupational life, he then consults a psychiatrist after nearly four weeks history of depressed mood and suicidal thoughts.

Based on the history, and using the SCID-I as an instrumental tool, he was diagnosed with bipolar disorder type II, and lithium carbonate 600 mg twice daily was started and reaching a therapeutic level of 0,9 mmol/l. Four months following therapy, his T-cell count showed for the first time improvement (Table 1).

Discussion

As shown in Table 1, the patient experienced a marked improvement (number has doubled) in the T-cell count after six months of lithium carbonate introduction. To note that the patient has been treated 2 years before with antiretroviral medications, and it the first time that he showed improvement in his T-cell count. The ratio of CD4 to CD8 cells is a measure of how balanced the immune function is. In HIV positive people not responding to treatment the ratio drops over time until there are more CD8 cells than CD4 cells [5]. (as shown in the table before the introduction of lithium).

Lithium, in addition to its being a mainstay in the treatment of bipolar disorder, it has shown significant results in boosting the CD4 count in HIV infected patients as reported in a study by Herbert et al [6]. Similarly, the outcome of our case comes in concordance with the reported study, highlighting the stimulating effect of lithium on the CD4 count.

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