

Do antidepressants enhance immune function?

Infection with human immunodeficiency virus (HIV), which leads to acquired immunodeficiency syndrome (AIDS), is an epidemic of global concern. According to the most recent estimates, released in November 2007, by the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organization (WHO), an estimated 33.2 million worldwide are living with HIV infection currently. Although the rates of infection appear to be decreasing, there are obviously immense implications for achieving improvements in HIV/AIDS treatment.

The functioning of natural killer (NK) cells, which are a major element of the innate immunity system and are involved in the body's first line of defense against infections such as HIV, is decreased in both HIV and depression. A group of researchers who have previously found that stress and depression impair NK cell function and accelerate the course of HIV/AIDS are now publishing a new report in the May 1st issue of *Biological Psychiatry*.

In this study, they recruited both depressed and non-depressed HIV-infected women and studied the ex vivo effects of three drugs, a selective serotonin reuptake inhibitor (SSRI), a substance P antagonist, and a glucocorticoid antagonist, on their NK cell activity. These drugs were selected because, as the authors state, each "affect[s] underlying regulatory systems that have been extensively investigated in both stress and depression research as well as immune and viral research."

The scientists found that the SSRI citalopram, and the substance P antagonist CP 96,345, but not the glucocorticoid receptor antagonist RU486, increased NK cell activity. According to Dr. Dwight Evans, corresponding author of the article: "The present findings provide evidence that natural killer cell function in HIV infection may be enhanced by selective serotonin reuptake inhibition and also by substance P antagonism in both depressed and non-depressed individuals."

John H. Krystal, M.D., Editor of *Biological Psychiatry* and affiliated with both Yale University School of Medicine and the VA Connecticut Healthcare System, comments: "There has been growing evidence that the compromise of immune function associated with depression influences the outcomes of infectious diseases and cancer. Antidepressant treatments are beginning to be studied for their potential positive effects on immune function."

He adds that "the paper by Evans et al. suggests that antidepressant treatment may have positive effects on natural killer cell activity in cells isolated from individuals infected with HIV with and without depression. This type of bridge between the brain and the rest of the body deserves further attention." Dr. Evans agrees, noting that "these findings begin to pave the way towards initiating clinical studies addressing the potential role of serotonergic agents and substance P antagonists in improving natural killer cell innate immunity, possibly delaying HIV disease progression and extending survival with HIV infection."

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