Immune suppression and immune activation in depression

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Introduction

According to projections by the World Health Organization (WHO), by the year 2030 depression will result in more years of life lost to disability than any other illness (World Health Organization, 2008). Compounding the enormous burden of depression alone, there is an increasing recognition of a high prevalence of comorbidity between depression and many of the major medical illnesses of our time (e.g., heart disease, stroke, cancer, and HIV/AIDS), evidence that depression is a risk factor and negative prognostic indicator for many of these illnesses, and an emerging consensus that the relationship between depression and these illnesses is bidirectional and, at least in part, driven by several biological processes, including immune dysregulation (Anisman et al., 2008; Evans et al., 2005). At the same time, the onset of the HIV epidemic and the recognition of the role of inflammation in the pathogenesis of heart disease (Hansson, 2005), stroke (Grau, 1997; Vaughan, 2003), and Alzheimer's disease (Aisen and Davis, 1994; Wyss-Coray, 2006) have established a central role for the immune system across the gamut of chronic diseases. These three important trends—the growing impact of major depression, its increasingly recognized co-occurrence with many other medical illnesses, and the elucidation of immune processes in the pathogenesis of these same illnesses—highlight the potential clinical relevance of the study of the relationship between depression and the immune system. As it has developed over the past 30 years, the field of the psychoneuroimmunology of depression has been dominated by two sets of observations. The first set of observations concerns itself with the association between stress...