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ON THE BORDER

Info & insights from the interface between energy healing & science

May 2015

Welcome to the May 2015 edition of 'On the Border'.

This month I am looking at the relationship between infection and depression. Interesting stuff as I look around me in Amsterdam and see people coughing, sneezing & wheezing...

For those of you new to 'On the Border', this is Jayne's monthly Ezine newsletter about the latest information and insights into energy fields, healing and science. Each month I share with you some of the latest research and how it applies to healing, energy work & (daily) life. There is also a Fascinating Facts section and a 'Freebie' where you get something for nothing, gratis.

Can Infection Make You Depressed?

Did you know that depression could be a symptom of something as simple as infection? Doctors have long viewed depression as a complex disorder. Stress, neurochemical imbalances, physical pain and ill health can all precipitate an emotional collapse. Yet a flurry of research during the past 25 years has linked many of depression's contributing factors to a single root cause: *inflammation*

In the short term, inflammation is an important part of our immune system's built-in ability to thwart disease and injury. But when prolonged, it can prompt fatigue and melancholy. In addition, investigations hint that an upset immune system might underlie a host of other psychiatric illnesses, including obsessive-compulsive disorder, panic disorder and post-traumatic stress syndrome.

With these growing insights, scientists are testing new treatments to heal the psyche by tempering chronic inflammation. Even if the approach may help only some people with depression, the benefit could be enormous. About one in 10 individuals suffers from a serious spell of despondency at least once during their lives, and depression is the most prevalent mental illness among women.

Self-Defense in Overdrive

Our immune system deploys an arsenal of diverse cells to keep us healthy, choreographing their actions by way of messenger molecules called cytokines. Cells attacked by harmful bacteria, viruses, parasites or cancer secrete

interferons, a class of cytokines that warn neighboring tissues to bolster their defenses and rally killer cells to engage. Cytokines called interleukins help to coordinate fever (which limits the spread of an infection) and inflammation (which rushes specialised immune cells to the scene). Tumour necrosis factors, yet another large family of cytokines, destroy abnormal cells and activate other cytokines. They also promote swelling, reddening and pain, which have both positive and negative effects.

Working together, these various proteins modulate the type, intensity and duration of an immune response. Across the blood-brain barrier, they also hold considerable sway over our emotional state. When we are unwell, interferons and interleukins announcing the start of an attack flood the brain. Numerous studies have revealed that these proinflammatory cytokines can disrupt the normal functioning of multiple neurotransmitters and dampen the production of serotonin, often called a happiness hormone for its ability to boost mood. As a result, even people with minor colds often lose their appetite, feel tired, seek warmth, avoid others and struggle to concentrate.

Biologically, this sickness behaviour, as it is called, makes sense. Our immune system works more efficiently and we can recuperate faster if we stay in bed. We are also less likely to infect our co-workers and friends. Once an illness has cleared, anti-inflammatory cytokines see to it that our bodies and our brain chemistry reset. But what if an illness drags on and the immune system continues to pump out proinflammatory signals? In that case, sickness behaviour begins to look a lot like depression. Tooth decay, urinary tract infections and sinusitis are all examples of infections that do not always produce obvious symptoms or pain but might perpetuate sickness behaviour for a long period.

To test the idea that depression can sometimes be a kind of extended sickness behaviour, psychology researcher Yekta Dowlati of the University of Toronto and her colleagues evaluated 24 studies in a paper published in 2010, looking at measurements of proinflammatory cytokines in about 400 depressed individuals. Overall, these subjects showed significantly heightened blood levels of tumour necrosis factor alpha (TNF-alpha) and interleukin-6, hallmarks of an ongoing immune reaction. Two years later researcher Simon Gray and psychiatrist Michael Bloch of Yale University conducted another meta-analysis of 12 studies of obsessive- compulsive disorder, often diagnosed alongside depression. They, too, reported elevated blood levels of TNF-alpha in individuals suffering from both depression and obsessive-compulsive disorder.

An overcooked immune response may also trigger anxiety disorders. In 2009 psychiatrist Elizabeth Hoge of Harvard Medical School and her co-workers compared the immunological status of 48 patients suffering from panic disorder or post-traumatic stress disorder with that of 48 age- and gender-matched healthy control subjects. The team tested blood serum levels of 20 different inflammation markers and found 18 of them to be higher in the psychiatric patients. To look for a generalised inflammatory state—indicative of an underlying injury or infection—they measured how many participants had detectable levels of at least six out of nine common proinflammatory cytokines.

Some 87 percent of the anxiety sufferers met the criterion, compared with only 25 percent of the controls…..

The Role of Stress

There seems to be little doubt that protracted low-grade inflammation can engender depression and other emotional disorders in some people. Whether or not a person succumbs may depend in part on how aggressive their immune system is to begin with. In 2013 a meta-analysis was carried out to examine data on genes that predispose humans to depression. It was found that many of these genes are present in individuals with an especially vigorous immune response—which might explain why the genes have persisted in the human population even though they can have a detrimental effect.

Until the advent of good hygiene and antibiotics, infection was arguably the greatest threat to staying alive, so having an overactive immune system conferred a real advantage. Raison and Miller speculate that today, when most of us are not routinely exposed to hazardous microbes, some people's immune systems habitually overreact to harmless stimuli, leading to a persistent increase in proinflammatory cytokines. This may account for an increased prevalence of not only depression and other emotional disorders but also allergies, autoimmune diseases, cardio-vascular disease, stroke, cancer, diabetes and dementia.

Stress probably plays a crucial role in this nexus of cause and effect. In the short term, the mere anticipation of injury can amplify inflammation. Several experiments have confirmed that animals experiencing moments of acute stress crank out higher levels of proinflammatory cytokines, and prolonged stress can eventually elicit depression-like behaviour in these same creatures. In 2009 psychiatrist Lisa Christian and her co-workers demonstrated a similar phenomenon in humans. They studied 60 women during pregnancy and found an association between depression and blood levels of TNF-alpha and interleukin-6. Proinflammatory cytokines rise during any pregnancy, but the researchers found elevated levels of both cytokines and depression in women under stress and the highest levels of depression in women under presumably the greatest stress—those with unwelcome pregnancies and those who received the least support.

Chronic stress is even more deleterious. Faced with some threat, the body prepares for fight or flight. A hormonal cascade along the so-called stress axis—from the hypothalamus to the pituitary gland to the adrenal gland—jump-starts the production of cortisol. Among other functions, this hormone temporarily suppresses the immune system to guarantee that we focus all of our energy on external dangers. If the stress endures, though, cortisol keeps the immune system offline, and we are more susceptible to illness. Over the course of several years, stress can permanently damage signaling along the axis, and we begin to release too little cortisol—in which case, the immune system reawakens and kicks into overdrive, with proinflammatory cytokines flowing freely.

Stacking the Deck

The sum of this research is a rough mechanism by which inflammation can seed depression: take an immune system prone to overreact and add stress. The chance of physical illness skyrockets, pro-inflammatory cytokines surge and sickness behavior becomes the new normal. Further investigations reveal that trauma in any form primes this pathway. In 2007 psychiatrist Andrea Danese conducted a longitudinal study of people who were rejected or mistreated by their parents during childhood. They found that even 20 years after the abuse, many study participants had greatly elevated blood levels of inflammation biomarkers.

Several other studies suggest that disturbing childhood experiences may permanently unbalance the stress axis and alter the sensitivity of cortisol receptors in the brain. Miller and his colleagues have discovered that compared with emotionally healthy control subjects, depressed men who were distressed as children mount much stronger immune responses when they take a test designed to cause psychosocial stress. Physical pain can also overload the immune system. Scientists have documented especially high levels of TNF-alpha in depressed women who also exhibit an increased sensitivity to pain—itself a symptom of sickness behaviour. Constant pain is a stress factor, creating a vicious circle: pain begets inflammation and stress, leading to more inflammation and depression. Indeed, so complex is the interplay of contributing factors that it may be impossible to determine the degree to which immune reactivity, personality, general physical health and life experiences contribute to depression in any one person. Chronic inflammation in and of itself almost certainly accounts for only a subset of patients with emotional disorders. Yet several trials have shown that patients who do not respond to traditional anti-depressants frequently begin to improve when they take anti-inflammatory medications, from everyday ibuprofen to cytokine inhibitors, on top of their other prescriptions. Interestingly, the reverse is also true. Patients suffering from skin cancer or hepatitis C frequently take the cytokine drug interferon-alpha, which causes inflammation, and many develop symptoms of depression as a side effect. Practitioners are thus pursuing a variety of approaches—from medications to dietary interventions—to tackle unwanted inflammation in psychiatric patients. For instance, in 2011 psychiatrist Janice Kiecolt-Glaser and her colleagues at Ohio State reported that omega-3 fatty acids, which curb inflammation, alleviated anxiety in medical students before an exam. Scientists are hopeful that drugs aimed at blocking cytokine receptors in the brain might also help quell emotional disorders. Several initiatives are under way to develop effective cytokine antagonists. Meanwhile more studies on the role of stress and trauma may reveal better ways to keep inflammation in check, lessening the risk that a chance infection will lead to an intractable disease.

References:

■ **Inflammation and Its Discontents: The Role of Cytokines in the Pathophysiology of Major Depression.** Andrew H. Miller, Vladimir Maletic and Charles L. Raison in *Biological Psychiatry,* Vol. 65, No. 9, pages 732–741; May 1, 2009.

■ **A Meta-Analysis of Cytokines in Major Depression.** Yekta Dowlati, Nathan Herrmann, Walter Swardfager, Helena Liu, Lauren Sham, Elyse K. Reim and Krista L. Lanctôt in *Biological Psychiatry,* Vol. 67, No. 5, pages 446–457; March 1, 2010.
■ **Can Infection Give You the Blues?** Erich Kasten in *Scientific American Mind*, Vol. 26, No. 3; May/June, 2015.
■ **The Evolutionary Significance of Depression in Pathogen Host Defense (PATHOS-D).**
C. L. Raison and A. H. Miller in *Molecular Psychiatry,* Vol. 18, No. 1, pages 15–37; January 2013.

Fascinating Facts

Did you know that…….

- Our ability to metabolise alcohol goes back millions of years, according to a recent genetic study?
- Professional football players who started the sport before age 12 were found to be more impaired in memory and intelligence that those who started at an older age?
- Extraordinary experiences may seem disappointing without friends or family around to share the thrill?
- Symptoms may improve if patients think they are taking a very expensive drug rather than a cheap one?

May Freebie

In this section you get the chance to get something for nothing. Helemaal gratis. Always a pleasure!
The company 'Sounds True' is celebrating 30 years in the business of publishing self-development and spiritual works. As part of this is it offering - free until end of May - a series of 30+ interviews with leading figures about the process of awakening. There are some real gems them!
http://www.soundstrue.com/store/wakingup/30-days-of-waking-up

After 30th May (or before if you want to) you can purchase the entire series, which is then downloadable. Up until 30th May it is all free, but not downloadable.

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