Chronic Disease and Trauma

Early recognition of trauma patterns for chronic disease prevention from a digestive health coach and holistic esthetician perspective.

Outline

Significance of Trauma in Chronic Disease

- Defining Trauma
- Nervous System Dysregulation
- Chronic Stress and Inflammation

Skin Immune Response & Trauma

- Inflammation & Immune Process
- Hypothalamic-Pituitary-Adrenal Axis
- Gut-Brain-Skin Axis

Recognizing Adaptations

- Biochemical Imbalances
- Adaptive Immune Patterns
- Risk Factors

Summary

References

Appendix

Introduction

As an esthetician, digestive health and embodiment coach, I connect with clients that feel unseen, unheard, and overwhelmed, all while suffering in silence. My personal wellness journey began after visiting a Med Spa for chronic cystic acne, post stomach cancer and a partial gastrectomy. [1] Had I not entered this beauty spa and been informed of the gut, brain, skin connection and later understanding the connection with adverse childhood experiences, my personal story might be a different story. [2,3]

When we see the development and progression of chronic health and skin conditions through the lens of the nervous system, we can recognize the biology of trauma adaptive patterns and the patterns of overwhelm. [4] Identifying the survival inflammatory stress response can shift our treatment plans and how we approach our clients health and chronic skin conditions, including clients experiencing body dysmorphia, and skin picking (excoriation disorder), etc. [5,6]

Trauma goes beyond the mind and is deeply rooted and contained within the nervous system. As a result of stored trauma, we see adaptations and coping mechanisms used to mask the underlying stored survival stress. This biology of trauma can later result in a chronic disease or illness, manifesting as skin conditions. [7]

The beauty industry has a lot of work to do when it comes to trauma awareness. My intention is to shift from an abrasive and inflammatory approach to a more connected and nurturing approach to skincare.

Significance of Trauma in Chronic Disease

Defining Trauma

Our treatment rooms become a place where our clients reveal themselves, both physically and emotionally. We see them without makeup, sometimes fully exposed and they share with us some of their most intimate life experiences, frustrations, joy, pain, and sorrow. When we understand the significance of trauma, the impacts in chronic disease, and the manifestations we see, our treatment plans, approach, and touch all may shift.

Trauma is often thought of as a major catastrophic event, war zone, or physical injury to the body. However, trauma is not the event.

"Traumatic symptoms are not caused by the "triggering" event itself. They stem from the frozen residue of energy that has not been resolved and discharged; this residue remains trapped in the nervous system where it can wreak havoc on our bodies and spirits." Peter Levine, PhD [8]

Trauma is any experience that causes overwhelm in the nervous system and can be identified as:

- too much too fast without the ability to integrate and/or
- too little support or lack of nourishment for too long

This overwhelm happens at the cellular and systemic level and causes dysregulation in the nervous system and a felt sense of insecurity in the body. We can take a deeper look at nervous system dysregulation through the lens of Dr. Stephen Porges, Polyvagal Theory. [9]

Nervous System Dysregulation

Polyvagal Theory provides insight into the biology of safety and danger via the parasympathetic and sympathetic nervous system states.
The sympathetic state, also known as fight or flight response, or our high alert stress response and the parasympathetic state consisting of two branches:

1. ventral vagal: the rest and digest state and is our social engagement system
2. dorsal vagal: the freeze response, immobilization, or our trauma response

When we experience stress, we activate our sympathetic system to either fight or flight from the situation. This is a natural acute stress response. However, an overwhelming experience that is too much, too fast, too soon, or too little resources signals to freeze and protect energy reserves.

When we go from constant stress to overwhelm, this creates an internal 'chaos' or dysregulation within the nervous system. It is constantly going from sympathetic, to dorsal freeze, back to sympathetic, never really settling into ventral vagal – our state of calm and safety. This continuous state of overwhelm is often referred to as a 'chronic freeze' or 'functionally frozen' state. We get stuck in these survival stress patterns because there aren't enough resources to support our system. This burden of constant stress and overwhelm creates dysregulation and disruption, allowing an environment for various symptoms, illness, physiological and biological changes to occur.

Chronic Stress and Inflammation

Now that we have discussed the difference between a natural stress response and an overwhelming stress response on the nervous system, we can look at the impacts on the immune system. Exposure to a chronic stressor, whether perceived, repeated, or prolonged, weakens the immune system and can lead to heart disease, cognitive impairment, stomach ulcers, sleep dysregulation, depression, anxiety, and psychiatric disorders. [10]

Stress begins in the brain and can either promote adaptation and survival or promote and exacerbate disease. Stress interactions are non-linear and release chemical mediators that have two contrasting sides of protection and damage in defense of daily stressors. Early life experiences and genetic constitution, as well as major life events, trauma, abuse, and environmental stressors are all major contributors of cumulative stressors. [11]

In 2020, a study indicated patients with PTSD (post-traumatic stress disorder) had an increased risk of developing Autoimmune Skin Disease. The well-known Adverse Childhood Experiences (ACE) study assessed the relationship childhood abuse and household dysfunction with increased adult health risk and disease.[13] There is a clear association between cumulative childhood stress and risk of adult autoimmune disease. In 2009, a study measured cumulative childhood stress based on the Adverse Childhood Experiences (ACE) score and risk of autoimmune disease in adulthood. The study concluded, "Childhood traumatic stress increased the likelihood of hospitalization with a diagnosed autoimmune disease decades into adulthood. These findings are consistent with recent biological studies on the impact of early life stress on subsequent inflammatory responses."[14]

It has been well established that inflammation is at the root of every disease. Most chronic symptoms and conditions have underlying inflammation, while there might not be a diagnosis it's an underlying chronic symptom. Elevated CRP (c-reactive protein) levels are an inflammatory marker that has been associated as a risk factor of adverse experiences in early life, showing up 20 years later.[15]

The immune system adapts to our body and environment to survive, and the nervous system is a window into our lived experience. When we look at this through the Biology of Trauma lens, we begin to see the story of the chronic stress response from high activation (fight, flight) to low activation (freeze, collapse) being activated over and over again. These constant oscillations of anxiety (sympathetic) and overwhelm (parasympathetic) creates an environment that is more susceptible to pathogens, viruses, and infections, etc. This overwhelms the immune system and puts it into overdrive, exposing the system to infections, long haul syndromes, chronic symptoms, and autoimmune conditions.

Skin Immune Response and Trauma

Inflammation and Immune Processes

Let's review a few of the factors involved from the skin perspective. When we have reached a burden or overwhelm, the system stays in survival mode until there are appropriate nutrients, support, and nourishment to shift out of survival stress mode and into a calm and safety state. An immune system caught in a Biology of Trauma creates an environment to accelerate an immune reaction. The skin is the largest organ of the body and regarded as one of the most vital endocrine organs. The skin produces multiple hormones such as Vitamin D, sex steroids, retinoids and opioids." [16] "The skin comprises the epidermis, dermis, cutaneous appendages, and subcutaneous tissue. It has a complex immune system that is histologically represented by skin-associated lymphoid tissue (SALT), which includes dendritic cells (DCs), mast cells, B and T lymphocytes, and keratinocytes. In certain situations, such cells may modulate the cascade of the local immune responses. SALT acts by protecting the body against foreign microorganisms and plays a role in the pathophysiology of inflammatory diseases such as autoimmune and hypersensitivity disorders."[17]

Hypothalamic-Pituitary-Adrenal Axis

An article written in 2007 titled, "A nervous breakdown in the skin: stress and the epidermal barrier" linking psychological stress induced skin immune response. Indicating the disruption in the skin's barrier via endogenous glucocorticoids produced by the activation of the HPA axis. The article stated: During periods of psychological stress the cutaneous homeostatic permeability barrier is disturbed, as is the integrity and protective function of the stratum corneum. Furthermore, a large number of skin diseases, including atopic dermatitis and psoriasis, appear to be precipitated or exacerbated by psychological stress. [18]

Gut – Brain - Skin Axis

We can take a deeper look into the dysregulation of the gut-brain-skin axis through the overlapping immune and inflammatory response in psoriasis and depression. The HPA axis and gut microbiome are key contributors.

Gut barrier and microbiota disruption strongly exacerbates systemic inflammation, resulting in decreases in short chain fatty acids, releasing of gram-negative bacteria, and the signaling cascade of proinflammatory cytokines, etc. Rosacea has been attributed to systemic inflammation as a result of the disruption in the gut microbiota, gut barrier permeability, and gastrointestinal inflammation.

As referenced above, the HPA axis releases inflammatory glucocorticoids and proinflammatory cytokines. Some inflammatory cytokines can cross the blood-brain barrier, activating microglia causing excitotoxin damage, and can release the neurotoxin quinolinic acid via the kynurenine pathway commonly associated with depression.

Through the perspective of this study, the gut-brain-axis is theorized as, "The inflammation associated with psoriasis and depression can interact through the "brain-skin axis", which is controlled by the HPA axis. Moreover, psoriasis and depression can also lead to disturbances in the gut microbiome through the gut-skin axis and gut-brain axis. In turn, disturbances in the gut microbiome can exacerbate the inflammatory response in psoriasis and depression. Generally, the dysregulation of the gut-brain-skin axis results in a vicious cycle of psoriasis and depression."[19]

Recognizing Adaptations

Now that we have explored the connection of the nervous system, let's look at the predispositions, adaptive immune patterns, and the risk factors towards a biology of trauma pattern that we begin to see in our treatment rooms.

When a person develops chronic symptoms or a condition, these chronic patterns of overwhelm and systems have already had to adapt to the environment. We can also look at biochemical imbalances that can predispose us to patterns of overwhelm, making one more susceptible to a biology of trauma.

Biochemical Imbalances [24]

Pyrrole Disorder or Pyroluria is a genetic disorder that can lead to zinc and vitamin b6 deficiencies, as well as reduce the ability to absorb gamma-linolenic acid, an Omega 6 fatty acid. These deficiencies have many symptoms including dry skin, eczema, acne, poor stress control, depression, sensitivity to lights and sounds, early graying of hair, etc. These symptoms can be more pronounced during heightened times of stress.

Copper Excess can be due to genetic disorder or low levels of zinc causing the copper to zinc ratio to be out of balance. High levels of copper cause oxidative stress, impacting mitochondria and energy production, creating an environment for infections to linger. Symptoms of copper overload include skin intolerance to cheap metals, sensitivity to tags or rough fabrics, white spots on fingernails, ringing in the ears, and is commonly associated with postpartum depression.

Undermethylation decreases the effectiveness of detoxification and increases histamine levels, making one more prone to allergies. The inability to detox properly and high allergies creates an environment for an active immune response and more susceptible to be overwhelmed by any new environmental exposure. Symptoms of undermethylation include urticaria/hives, oily skin, acne, seasonal allergies, perfectionism, competitive, addictive behaviors, obsessive tendencies, etc.

These biochemical imbalances are becoming more common and can often result in imbalances in the immune system, creating an inflammatory environment and decrease in our energy production. Our capacity for stress decreases and the opportunity for overwhelm increases.

Below are the five most common adaptive immune patterns. These adaptations all have a pattern of overwhelm driving them into pro-inflammatory states.

Adaptive immune patterns

Metabolic Syndrome is a proinflammatory state that includes insulin resistance, high blood pressure and excess weight. Skin diseases in connection with Metabolic Syndrome include psoriasis, acne vulgaris, hidradenitis suppurativa, androgenetic alopecia, acanthosis nigricans, and atopic dermatitis. [25] You might also see clients with PCOS (polycystic ovarian syndrome) presenting with cystic acne and excess facial hair.[26]

Long-Haul Syndrome can present from any kind of infection, insult or injury taxing the immune system leading to lack of regulation and energy. This creates the environment for developing long-haul syndromes with other subsequent infections, including toxins, metals and biochemical imbalances as mentioned above. Some common skin infections include cellulitis, impetigo, staph, strep, shingles, herpes, yeast infections, and scabies. [27]

Autoimmunity is triggered when antibodies begin to see our own tissue as a danger and auto-antibodies form, creating inflammation to kill off the threat. Intestinal permeability or leaky gut is the main cause of autoimmunity conditions. [28] Pyroluria is also commonly associated with autoantibodies. While there has been some controversy as to whether eczema (atopic dermatitis) is an autoimmune condition, a study in 2021 concluded significant association of atopic dermatitis with multiple autoimmune diseases, including alopecia areata, celiac disease, Crohn's disease, rheumatoid arthritis, systemic lupus erythematosus, ulcerative colitis and vitiligo. Indicating those with atopic dermatitis are more likely to develop an autoimmune condition and could be an early indicator of autoimmunity. [29]

Hyper-Sensitivity and Hyper-Reactivity patterns are triggered by chemicals, food, metals, pollutants, etc. Multiple Chemical Sensitivity (MCS) results in the hyper-activation of sensory receptors due to oxidative stress, chronic neurogenic and systemic inflammation, altered blood brain barrier permeability and insufficient detox capacity.[30] Skin sensitivities to metals, tags, fabric and food dyes can often be associated with excess copper levels. Individuals that are undermethylators have symptoms of sensitivities and reactions due to high histamine levels.

Chronic Pain is a condition associated with the chronic freeze response and neuro-inflammation activity pain pathways. Complex Regional Pain Syndrome (CRPS) is a chronic pain disorder that has a combination of spontaneous pain or excess pain following something as normal as light touch, including changes in skin color, temperature, and/or swelling. CRPS is caused by inadequate function of the peripheral c-fiber nerve fibers that carry pain messages to the brain triggering inflammation.[31] Shame has also been associated with chronic pain, some sufferers even reporting the shame feels more unbearable than the pain itself, scholars describing pain as “an assault on the self.”[32]

Risk Factors

When we look at some of these biochemical imbalances and the adaptive immune patterns, we can begin to see the risk factors in the development of autoimmune and chronic conditions. The risk factors mainly being intestinal permeability or leaky gut, a pattern of overwhelm and feelings of shame.[33,34, 35] Most clients that I have seen in my treatment room come in with all three of these factors, myself included. This can open up a conversation about the high risk of development of autoimmune and/or chronic conditions.

Summary

As a skin care therapist and digestive health coach, I find it important to open up these conversations in the treatment room. I believe had I personally not walked into the Med Spa and received the knowledge and nurturing care that I did, my story would be very different today. I had the risk factors, biochemical imbalances and adaptations towards autoimmunity and chronic disease.

It is my mission to change the conversation in our treatment rooms to create a more trauma informed and trauma aware approach with clients. We can become a trusted resource to our clients, as well as connect them with other trusted professionals that might be out of our scope of practice. While we do not diagnose, we do have the opportunity to be a knowledgeable part of their wellness team. Clients often confide with us their symptoms, worries and concerns that they don’t share or have been dismissed by others. Let’s welcome these conversations and be an informed and resourceful part of their wellness team.

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Appendix

Trauma Studies

Below are a few studies that correlate the connection between childhood trauma and chronic skin conditions.

A study in 2018 reviewed the correlation between childhood trauma and resilience in psoriatic patients. They utilized the Psoriasis Area and Severity Index and the Skindex-29 as well as Childhood Trauma Questionnaire and the Connor-Davidson Resilience scale to assess trauma exposure and resilience. Psoriasis has the highest association with psychiatric illness and increased risk of suicidal ideation. Indicating childhood trauma can affect optimal right brain and immune system development, adversely impacting emotion regulation and stress resilience. The results concluded that psoriatic patients showed significant prevalence in childhood trauma and lower resilient levels.[20]

Two studies reviewed the association of childhood abuse and systemic lupus erythematosus (SLE) in women and black women, respectively. Indicating the exposure to psychosocial stressors and the onset of SLE through the dysregulation of the adaptive stress response. Both studies concluded that childhood abuse significantly increased the risk of SLE in adulthood.[21,22]

Common symptoms of Multiple Sclerosis (MS) include numbness, pins and needles, pain and extreme itching. While these symptoms are not a direct skin condition, they are neurologic due to demyelination of the nerves. As an esthetician it is important to understand these symptoms might be an early warning sign. MS has also been concluded that adverse childhood experiences predict reaction to multiple sclerosis diagnosis. [23]