Cleveland's Center for Healing
HYPERION™
Functional Medicine

BLADDER CANCER AND ACTIVATION OF THE HPA AXIS

There are several types of bladder cancer, the most common diagnosis is urothelial carcinoma. It occurs in the urothelial cells lining the interior part of your bladder. As a physically and psychologically debilitating disease, bladder cancer typically can lead to severe emotional distress such as anxiety, depression and suicidality[1].

MD Anderson Cancer Center has published outcomes related to stress and depression in patients with bladder cancer. They discuss a study that shows lower levels of depressive symptoms greatly improve survival for bladder cancer patients[2]. Elevated cortisol, occurring with stress, has been linked to depression; cortisol is known as the stress hormone[3].

Chronic unpredictable stress has been linked with acceleration of the growth of bladder cancer. Chronic unpredictable mild stress can increase cortisol levels and accelerate bladder cancer growth in mice. Stress hormones can also trigger a chain reaction affecting immune cells that can cause dormant cancer cells to wake up and form tumors again. The complex mechanisms influencing cancer cells as a result of chronic stress, are related to the hypothalamic-pituitary-adrenal (HPA) axis, which further act on the immune system and microenvironment of tumors. Psychiatric disorders and chronic psychological stress are common in patients with bladder cancer and addressing chronic stress is a priority for patients with bladder cancer[4].

In a study published in 2021, it was revealed that patients with non-muscle invasive bladder cancer suffered significant posttraumatic stress disorder symptoms. Factors that contribute to their stress include uncertainty for the future, especially when it comes to cancer recurrence, as well as frequently needed to undergo invasive testing[5].

It's important for cancer patients who are healing to identify their level of stress, possibly levels of cortisol via testing, and to find stress reduction techniques to lead to a decreased level of cortisol.

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Understand what Symptoms of Elevated Cortisol are:

1. Elevated cortisol can cause rapid weight gain in the belly, but also in the face and chest. Cortisol affects levels of ghrelin and leptin. Ghrelin is referred to as the "hunger hormone" as it induces hunger. Leptin, on the other hand, will cause you to feel full or satiated. Cortisol lowers leptin while increasing ghrelin, leading to weight gain, especially in the abdominal area
2. Easy bruising and slow healing are also signs of elevated cortisol. Elevated cortisol affects the immune system.
3. Muscle weakness can occur and be noticed in the upper arms and thighs.
4. Chronic fatigue is a common symptom of elevated cortisol.
5. Cortisol has effects on the gastrointestinal system because it slows movement through the stomach and leads to bloating and indigestion. It can also lead to diarrhea. It negatively impacts the G.I. microbiome.
6. Increase in blood pressure can occur.
7. Bone loss can lead to Osteoporosis, increasing your risk of fractures.
8. Mood changes such as depression and anxiety, mood swings and sadness also tend to occur more frequently.
9. Cortisol influences our circadian rhythm, not just as a player in the stress response. Cortisol is released in large amounts in the morning but levels at night will be the lowest. The duration of stress can increase cortisol chronically and this can affect the circadian rhythm leading to fatigue, sleep difficulties and more. Chronic insomnia or frequent nighttime waking is a symptom.
10. Other biological changes can include elevated blood sugars, muscle pain, or muscle tension.

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Ways you can balance your cortisol levels in addition to continuing your oncology treatments

1. What you eat can not only impact your cancer, but also your cortisol levels, eating foods such as processed meats, high sugar foods, caffeine and alcohol, which provide little nutritional value, have been associated with more psychiatric symptoms and can increase cortisol levels. MD Anderson Center lists foods, like cookies, cakes, sugary drinks, white bread, and pasta as foods to avoid, they cause blood sugar levels to rise rapidly. The body then produces insulin to bring blood sugar levels back down, which can lead to a crashing period that affects other hormones, including cortisol[6]. The resulting chronic elevation in insulin, known as hyperinsulinemia, over time, also drives cancer growth and metastasis.
2. Caffeine is known to increase cortisol, limiting caffeine intake is recommended to reduce elevated cortisol levels.
3. Relaxation techniques, like deep breathing exercises, yoga, mindful meditation, and prayer all will help reduce cortisol levels. In functional medicine we typically recommend regular meditation twice a day for 20 minutes. Reducing stress levels will help suppress the release of cortisol. Getting into a daily habit using these tools can help bring cortisol levels down.
4. Getting enough sleep is critical, sleep is the time for cellular healing in the body. Many times, elevated cortisol disrupts sleep. Typically, you find you wake up at 3 o'clock in the morning and can't go back to sleep. This is a sign of elevated cortisol as cortisol starts to rise early in the morning to get us ready for the day. It's already elevated, its effects are compounded. There are supplements that can assist patients in bringing their elevated cortisol levels down at night in addition to relaxation techniques. Adaptogenic herbs such as Ashwaganda and Rhodiola, Adaptogen's help the body adapt to stress. Holy basil tea is another action. Magnesium can also help patients relax.
5. In the warmer weather, spend as much time outside as possible: get your bare feet on the ground and practice grounding/earthing, here's a link to learn more about its effects on inflammation and healing:

   Oschman JL, Chevalier G, Brown R. The effects of grounding (earthing) on inflammation, the immune response, wound healing, and prevention and treatment of chronic inflammatory and autoimmune diseases. J Inflamm Res. 2015 Mar 24;8:83-96. doi: 10.2147/JIR.S69656. PMID: 25848315; PMCID: PMC4378297.
6. The Grounded Documentary (Steven Kroschel)--free on Youtube. He is a filmmaker for National Geographic and runs a wildlife rescue in Haines, Alaska. He tested it on his whole town. --Heal For Free.
7. Websites: http://earthinginstitute.net. Under the research tab you will find placebo-controlled studies on the benefits of grounding/earthing. You can also look under the FAQ tab at the about where to buy earthing products. It will send you to a different website from which you can order products.
8. http://www.intuition-physician.com. This is the website for Laura Koniver MD. She is an integrative physician and earthing expert and does web-based classes. She reviews articles for tvarious topics regarding the benefits of ground/earthing. She also sells grounding products. She is featured in the two documentaries above.
9. People: James Oschman PhD (cell biologist, and pioneer scientist in the field of energy medicine. Did some of the original research on the benefits of grounding. Also wrote the book: energy medicine: the scientific basis). Clint Ober--Brought a lot of momentum to considering the benefits of earthing. Co-wrote the book Earthing: The Most Important Health Discovery Ever? With Stephen Sinatra MD (integrative cardiologist and also expert on grounding) and Martin Zucker.
10. Joseph Mercola also talks about earthing

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Because cortisol has a very significant impact on cancer and progression, we need to help our cancer patients bring their cortisol levels down. In Hyperion Functional Medicine, we offer adrenal testing to look specifically at your cortisol levels over a 24-hour period and diagnose high levels of cortisol as indicated. Patients with sleep disruptions, and anxiety driven by high levels of cortisol usually benefit initially from supplements that have a strong influence on cortisol levels, meditation is also very helpful, and instruction on methods to improve sleep are offered. Your appointments in the Hyperion phase 1 oncology program with a certified health coach and a psychotherapist can offer you tools to help manage these cortisol levels and associated symptoms as well offering tools to optimize your cancer treatment journey.

Reduction of cortisol levels will positively impact your cancer healing journey.

In partnership with healingstrong

1 - Vartolomei L, Vartolomei MD, Shariat SF. Bladder Cancer: depression, Anxiety, and Suicidality Among the Highest-risk Oncology Patients[J]. Eur Urol Focus. 2019
2 - https://www.mdanderson.org/publications/promise/depression-stress-key-factors-in-bladder-cancer-outcomes.h37-1588257.html
3 - Qin, Dd., Rizak, J., Feng, Xl. et al. Prolonged secretion of cortisol as a possible mechanism underlying stress and depressive behaviour. Sci Rep 6, 30187 (2016). https://doi.org/10.1038/srep30187
4 - Zhou Q, Ding W, Qian Z, Jiang G, Sun C, Xu K. Chronic Unpredictable Mild Stress Accelerates the Growth of Bladder Cancer in a Xenograft Mouse Model. Psychol Res Behav Manag. 2020 Dec 23;13:1289-1297. doi: 10.2147/PRBM.S288983. PMID: 33380846; PMCID: PMC7767701.
5 - Jung A, Crandell JL, Nielsen ME, Mayer DK, Smith SK. Post-traumatic stress disorder symptoms in non-muscle-invasive bladder cancer survivors: A population-based study. Urol Oncol. 2021 Apr;39(4):237.e7-237.e14. doi: 10.1016/j.urolonc.2020.11.033. Epub 2020 Dec 8. PMID: 33308978; PMCID: PMC7956138.
6 - https://www.mdanderson.org/cancerwise/8-foods-that-impact-stress