TOXIN EXPOSURES & LYMPHOMA

Lymphoma develops when white blood cells called lymphocytes grow out of control. The DNA inside a lymphocyte change in a way that stops its response to specific cellular signals. Then the lymphocyte could divide in an abnormal way or does not die when it should. DNA mutations happen all the time and can lead to many types of cancer. These DNA mutations can affect critical genes. These changes can lead to cancer, such as lymphoma[1].

According to the American Cancer Society, there are non-Hodgkin's lymphoma risk factors associated with toxins. exposure to chemicals such as benzene, certain herbicides and insecticides/pesticides have been studied and may be also linked to an increased risk of non-Hodgkin's lymphoma. Chemotherapy drugs used to treat other cancers may increase the risk of developing non-Hodgkin's lymphoma (NHL) years after chemotherapy treatment. Specified drugs used to treat rheumatoid arthritis (RA), such as methotrexate and the tumor necrosis factor (TNF) inhibitors, might increase the risk of NHL. Bacterial infection in the gut by bacteria caused by helicobacter pylori has been found in most people with a slow-growing type of non-Hodgkin's lymphoma. H pylori generates molecules that are toxic. Ammonia seems to be a likely mechanism to cause disease[2].

All lymphoma patients who enter the functional oncology program through Hyperion functional medicine will be given a stool test to reveal bacterial infections including H. pylori.

In studies of survivors of atomic bombs and nuclear reactor accidents, it has been shown those exposed have an increased risk of developing several types of cancer, including leukemia, thyroid cancer, and non-Hodgkin's lymphoma. Breast implants have also been implicated in causing a rare type of T-cell lymphoma[3].

In studies that were part of the InterLymph Symposium, thousands of lymphoma cases were studied in specific occupations. Specifically, non-Hodgkin's lymphoma, diffuse large B cell lymphoma, chronic lymphocytic leukemia, follicular lymphoma, and peripheral T-cell lymphoma. Evidence suggested that risk for these cancers were increased in workers with exposures to textiles, workers in farming occupations with exposure to field crops, hairdressers, spray painters, electric wiremen, carpenters, and char workers. An employee's exposed to solvents especially spray painters there were associations with non-Hodgkin's lymphoma development. Metal dust and metal working fluids are also a risk factor[4].

Mitochondrial dysfunction is being seen as a major hallmark of environmental toxic exposures. After tumors begin to develop, a "metabolic switch" occurs in the mitochondria, this is known as the Warburg effect. This enables cancer cells to survive and multiply more effectively. In addition, reactive oxygen species formed by the impact of toxins promote cancer's initiation and progression. Because of the mutations in mitochondrial DNA. More simply stated, our genetics are modified due to environmental insults that involve mitochondrial dysfunction[5].

Hyperion functional medicine places all patients in the phase 1 functional oncology program in a targeted detox program based on their exposures revealed in their lifetime history. Everyone has toxic exposure history to chemicals, pesticides, mold, and heavy metals. These exposures are cumulative, in other words they build up in the body over time. Testing for mold and toxins is an option for patients with a toxic exposure history. Toxin exposures are a functional root leading to development of cancer for almost everyone with every type of cancer and must be addressed.

In partnership with

[1]https://lymphoma-action.org.uk/about-lymphoma-what-lymphoma/causes-and-risk-factors-lymphoma
[2]Mégraud F. Toxic factors of Helicobacter pylori. Eur J Gastroenterol Hepatol. 1994 Dec;6 Suppl 1:S5-10. PMID: 7735936.
[3]https://www.cancer.org/cancer/types/non-hodgkin-lymphoma/causes-risks-prevention/risk-factors.html
[4]'t Mannetje A, De Roos AJ, Boffetta P, Vermeulen R, Benke G, Fritschi L, Brennan P, Foretova L, Maynadié M, Becker N, Nieters A, Staines A, Campagna M, Chiu B, Clavel J, de Sanjose S, Hartge P, Holly EA, Bracci P, Linet MS, Monnereau A, Orsi L, Purdue MP, Rothman N, Lan Q, Kane E, Costantini AS, Miligi L, Spinelli JJ, Zheng T, Cocco P, Kricker A. Occupation and Risk of Non-Hodgkin Lymphoma and Its Subtypes: A Pooled Analysis from the InterLymph Consortium. Environ Health Perspect. 2016 Apr;124(4):396-405. doi: 10.1289/ehp.1409294. Epub 2015 Sep 4. PMID: 26340796; PMCID: PMC4829988.
[5]Duarte-Hospital C, Tête A, Brial F, Benoit L, Koual M, Tomkiewicz C, Kim MJ, Blanc EB, Coumoul X, Bortoli S. Mitochondrial Dysfunction as a Hallmark of Environmental Injury. Cells. 2021 Dec 30;11(1):110. doi: 10.3390/cells11010110. PMID: 35011671; PMCID: PMC8750015.