Naturally and Selectively Activating the Immune System Against Cancer

By Mark Simon, Director, Nutritional Oncology Research Institute

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Conventional Immunotherapy

The relationship between cancer and the immune system is highly complex but there are some basic principles that are easily understood. Cancer patients need guidance and clarity in order to navigate through their treatment options.

One of the hallmarks of cancer is immune evasion and this characteristic of cancer cells occurs very early in tumor development. Cancer cells originate from stem cells and these cells express multiple signals to the immune system that identify these cells as self. Cancer cells strongly express these protective signals and are well shielded from immune surveillance and attack.

Immunotherapy has been slated as the next big advance or revolution in oncology. FDA approved multiple drugs for application in cancer immunotherapy without sufficient evaluation and analysis of risks and benefit. Oncologists freely prescribe these drugs without properly informing patients regarding the response rates, overall survival benefit and all of the expected adverse side effects.

Immunotherapy is ineffective for most cancers and has at best a 20% response rate for the cancers that it can treat. Serious adverse side effects directly caused by immunotherapy drugs are common. The most serious adverse events are permanent organ damage. Immunotherapy is not selective, meaning that the immune system attacks both cancer cells and normal cells. Common occurrences are destruction of the thyroid gland, pituitary gland, intestinal tract, skin and potentially any organ system.

The most widely prescribed immunotherapy drugs are classified as Immune Checkpoint Inhibitors (ICIs) which are monoclonal antibodies that target PD-1/PD-L1 signaling. Cancer cells express PD-L1 while CD8+ T cells express PD-1. It is this signaling mechanism that identifies cells as “self”, preventing immune attack. ICIs are marketed as safe and effective drugs with a poor overall survival benefit and high risk of adverse events. ICIs unleash the immune system creating an autoimmune storm that can be challenging to reign in once triggered.

ICIs are big money makers for pharmaceutical manufactures. The most commonly prescribed ICIs are Keytruda and Opdivo with a high cost of up to $14,000 USD per month. ICIs carry not only systemic toxicity but high financial toxicity. Oncologists are incentivized to prescribe the most expensive drugs that may not offer an optimal benefit risk ratio.

Limiting Factors for ICI Effectiveness

Setting aside the adverse side effects of ICIs, why is the response rate so low? Researchers have found that the tumor microenvironment (TME) is the key factor. The TME is highly immunosuppressive for multiple reasons. Tumor acidity is possibly the primary reason for a weak immune response. The TME is acidic due to abnormal metabolism of cancer cells. Cancer cells produce lactate as a byproduct of glycolysis and this is responsible the the acidic extracellular pH of the TME.

Major Histocompatibility Complex - Class I (MHC-I) is expressed on all cells providing information to CD8+ T cells. Cancer cells down regulate MHC-I to evade immune surveillance. This is a factor that can limit an immune response. Selenium deficiency has been implicated in poor anti-tumor immunity.

Another factor limiting effectiveness of ICIs is related to the diversity and balance of the gut microbiome. Antibiotic treatment is known to cause complete ineffectiveness of ICIs. Fecal microbiome transplant from ICI responders improves outcomes. There is a highly complex relationship between the gut microbiome and the immune system. What is certain is that a robust immune system is associated with microbiome diversity and a low level of pathogenic bacteria. Diet is central to maintaining a healthy gut microbiome. Fiber is the most critical dietary factor as fiber feeds the most desirable gut microbes.

CD47, the “don’t eat me” signal blocks macrophage activity against cancer cells but may also block T Cell activity against cancer cells.

Natural Immunotherapy

Fortunately, there exists a way to activate the immune system to attack and destroy cancer cells without causing any side effects and collateral damage. This method is simple and fully administered at home. Natural immunotherapy represents a drug free, nontoxic, inexpensive alternative to pharmaceutical ICIs and other forms of conventional immunotherapy.

Natural immunotherapy creates a broad immune response involving CD8+ T cells. natural killer (NK) cells and macrophages. This is a far more potent approach compared to conventional immunotherapy which targets only one type of immune cell.

Natural immunotherapy does not carry the risks of toxicity and adverse events caused by conventional immunotherapy. Natural immunotherapy is selective to only cancer cells and does not create autoimmune related organ damage. The key to success with this approach involves modulating the TME and optimizing the gut microbiome.

Presented is a natural immunotherapy protocol based on the best available scientific evidence at this time. Natural immunotherapy is outlined as three major components, blocking immune evasion, neutralization of TME acidity and optimization of the gut microbiome. The current NORI protocol implements natural immunotherapy by default but one may choose to implement only the immunotherapy aspect of the NORI protocol. Natural immunotherapy does not require methionine and cysteine restriction, simplifying the dietary requirements.

Part A - Blocking Immune Evasion

For an anti-tumor immune response to occur, multiple immune signaling molecules must be modified, blocked or suppressed. These signals identify cells as self and are essential for the protection of normal cells from immune attack. For immunotherapy to be selective for cancer cells, these signaling molecules must be turned off only on cancer cells.

Natural immunotherapy enables Cytotoxic CD8+ T cells, Natural Killer cells and Macrophages to see cancer cells and mount an immune response. Natural agents have been identified and studied that suppress the expression of molecules on the cancer cell surface that signal immune cells not to attack or eat me.

A recent and monumental discovery is that vitamin B6 (P5P) is a PD-L1 supppressor. This discovery means that PD-L1 can be shut off selectively in cancer cells and CD8+ T cells can attack cancer cells. Orally administered vitamin B6 (P5P) is safe and effective means to eliminate PD-L1 expression on cancer cells. There are potentially other agents that may lower the expression of PD-L1. Adequate vitamin B6 is essential for T cell functioning so this is another way that vitamin B6 supports an immune response.

Selenium has been found to play a role in enabling an immune response by enhancing MHC-I expression which is essential for an immune response. Sodium selenite, an inorganic form of selenium enables natural killer cells to see cancer cells as abnormal.

Zinc is essential for the functioning of macrophages as phagocytes for engulfing cancer cells.

A combination of vitamin B6 (P5P), Sodium Selenite and Zinc Picolinate is sufficient for blocking immune evasion and promoting the activation of CD8+ T cells, NK cells and macrophages. This is dependent on two other factors involving the tumor microenvironment and the gut microbiome.

NORI will be offering a single nutraceutical tablet containing the mentioned supplements at appropriate dosages to simplify administration. Parts B and C are essential for a robust immune response.

Part B - Neutralization of TME Acidity

Neutralization of TME acidity is essential for optimizing conventional and natural immunotherapy. TME acidity is due to abnormal cancer cell metabolism. Lactate is produced as a metabolic byproduct.

Dietary factors highly influence acid-base balance. Fruits and vegetables contribute to an alkaline state while animal proteins contribute to an acid load. A plant-based diet with a high intake of fruits and vegetables and low protein offers the most alkaline forming diet.

Utilization of orally administered buffering agents is effective in shifting the TME acidic pH to alkaline. Urine pH can be monitored to help maximize alkalinity through diet and buffers. Ideally, urine pH should fall within the range of 7.5 to 8.0.

Part C - Optimization of Gut Microbiome Diversity and Balance

The interactions between the gut microbiome and the immune system are highly complex. What is understood is that optimal immunity is dependent on the balance and diversity of gut microbes. Immunotherapy effectiveness has been determined to be intimately related to the gut microbiome.

Fiber intake is the key determinate of a healthy gut microbiome. A high intake of fruits and vegetables is essential and a whole foods plant-based diet is ideal. Avoidance of all animal products and processed foods is critical to maintaining a healthy balance of microbes. Incorporation of fermented foods such as sauerkraut and kimchi can be helpful. Multi-strain probiotic supplements can support gut microbiome diversity.

Final Comments

Immunotherapy may be combined with other cancer treatment modalities forming a hybrid treatment approach. The NORI protocol is both a cytotoxic and immune based therapy. The immunotherapy aspect of the NORI protocol can be parsed out and incorporated by itself. Natural immunotherapy can be applied as a preventative tool, a standalone therapy or as a means to prevent recurrence.

Further research will undoubtedly provide data to enhance natural immunotherapy where it will become the gold standard in drug-free and nontoxic cancer therapy. Enabling one’s own immune system seems like the ideal approach for treating cancer provided that the immune system does not breach the natural protection mechanisms of normal cells.

Conventional immunotherapy as currently implemented is not without serious risks and complications. As with all conventional cancer treatments, the immunotherapy approach is extremely narrow and deficient in incorporating nutrition and supplementation. The promise of conventional immunotherapy has been another massive failure in treating a disease that can be treated naturally.

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