

The way ahead for Mesothelioma

12 March 2019 | Features

Researchers are pushing forward testing all kinds of new therapies to help battle mesothelioma



Mesothelioma and stem cells: What the research says

Mesothelioma is a [rare, aggressive form of cancer](#) that commonly affects the lining of the lungs, heart, abdominal cavity, or the testes. It is most often associated with exposure to asbestos and asbestos-containing materials like vinyl flooring, insulation fibers, and auto parts.

People are [often diagnosed in the late stages of the disease](#) due to its extraordinarily long latency period. The time between initial exposure and development of the disease can be separated by many years or even decades. Recent research has shown a connection between mesothelioma and stem cells.

Mesothelioma is Rare, Treatment is Challenging

Mesothelioma is rare among cancers. Only about [3,000 people are diagnosed each year](#). Most of those, about 75 percent, have pleural mesothelioma, which attacks the tissue around the lungs. About 20 percent are diagnosed with peritoneal mesothelioma, affecting the abdominal cavity. Many more men than women develop mesothelioma because of the connection to workplace exposure.

Because it is rare, and because mesothelioma is aggressive and develops multiple, small tumors, this cancer is also difficult to treat. Most people are diagnosed in later stages, making surgery difficult if not impossible as a treatment strategy. Mesothelioma spreads readily and rapidly, and stopping that spread is a big challenge.

Clinical Trials for Mesothelioma

Standard treatments like surgery, chemotherapy, and radiation are most often used to try to manage mesothelioma. But the

success of these is limited. The real hope for patients with this cancer lies in clinical trials. This is where innovative therapies, like immunotherapy, gene therapy, and stem cells can be tested.

While these trials give patients hope, there are challenges and limitations. As a rare disease, the number of patients available to participate is limited. And there is a lack of awareness that trials are even available. The costs and difficulties of traveling to a cancer center can also limit how many patients choose to get involved. Without enough participants, trials cannot accomplish much. And, of course there is the problem of funding, which can be hard to get for rare diseases.

Still, researchers are pushing forward testing all kinds of new therapies to help battle mesothelioma: immunotherapy drugs that prevent cancer cells hiding from the patient's immune system; targeted antibodies that deliver toxins directly to cancer cells; genetically altered immune cells; and of course, stem cells.

What are stem cells?

There has been a clamor about stem cells since they first came into the news. Each day seems to bring exciting new discoveries in [stem cell research](#). Stem cells are a type of cell that has the unique ability to become any other cell type in the human body.

Cancer stem cells and their role in relapse

Cancer stem cells, which are sometimes referenced as CSCs, are a particular kind of stem cell found in some types of cancer. Malignant mesothelioma is one of those cancers. While regular stem cells can become any other cell type in the body, CSC's are limited in that they can only become any of the cell types that can exist in a tumor. Recent research suggests that CSCs may have a role to play in the return of cancer post-treatment.

Some tumors that return after being eradicated by surgery or chemotherapy are thought to be the work of CSCs that remain in the body after treatment is completed. Researchers are looking for ways to stop CSCs in their tracks since they can derail a remission from mesothelioma cancer. A recent study from University College London indicates that programming stem cells to systemically attack the target, causing the death of those cells, may eradicate mesothelioma tumors without harming healthy surrounding cells.

Mesenchymal Stem Cells

While this science is very promising, researchers are working on another angle as well. Mesenchymal stem cells ([MSCs](#)) are a type of stem cell found in the stroma, which is connective tissue that is found throughout the human body. These cells are able to differentiate into fat, muscle, cartilage, and bone cells. How these cells work is still unclear, but scientists are speculating that they may also be able to moderate the immune system. These are being tested as a way to deliver drugs to tumors and as supplements for immunotherapy. MSCs may be able to assist the body's immune system in targeting and killing cancer cells.

Systemic stem cells could be the future of treatment

Systemically-delivered stem cells show promise, but the findings are preliminary. More research is needed to determine if the initial findings are valid and efficacious. Stem cell therapy could rise to be a safer and more effective method of treatment if further trials are successful. This could mean fewer side effects and significantly shorter recovery time, hopefully leading to increases in both quality and length of life.

Can I get stem cell treatment for my mesothelioma?

If you would like to participate in stem cell research that is underway and have been diagnosed with malignant mesothelioma,

talk with an oncologist about enrolling in clinical trials for the [treatment of mesothelioma tumors](#).

While participation in [clinical trials](#) is limited to those you qualify for, you may be able to participate in a trial studying the effects of stem cell treatment for mesothelioma cancer. Please be aware that some trials may be limited by proximity to the research facility.