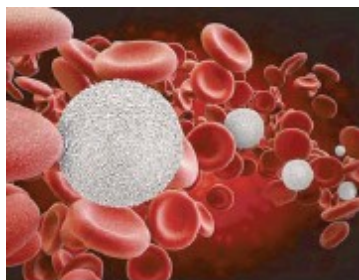


# Cell therapy brings hope for blood cancer patients

The Philippine Star · 16 Oct 2018 · D2

Acute lymphoblastic leukemia (ALL) is a cancer that seems to afflict children. In the Philippines, children are diagnosed at an advance stage because their symptoms are mistaken for other illnesses. What's worse, some aggressive forms of leukemia resist conventional cancer treatment like chemotherapy.



Cell therapy is now considered by medical authorities as critical in the fight against cancer. In some clinical trials, it has already been shown to work with blood cancers. Further research is being done to see if cell therapy will work on reducing tumors as well.

That was the good news shared by Dr. Lim ZiYi, a senior consultant in haematology who spoke at a cancer seminar organised by Channel NewsAsia and Parkway Cancer Center.

Cell therapy is one type of immunotherapy which involves using the body's own immune system to fight cancer.

With cell therapy, scientists and researchers use CAR T cells to locate and kill cancer cells. T cells are part of the immune system and develop from stem cells in the bone marrow. They are a kind of white blood cells which help the body fight off infections. They also have the ability to kill cancer cells.

CAR T cells are T cells that have been genetically engineered to produce receptors on their surface called chimeric antigen receptors (CARs). These special receptors allow T cells to recognise and attach themselves to a particular protein, or antigen, on tumor cells.

“Once the cancer is hit, the T cells are triggered to multiply at a very rapid rate so effectively creating a nuclear bomb to kill the cancer,” said Dr. Lim.

He recounted the dramatic story of Layla Richards, a little girl in London who was diagnosed with infant acute lymphoblastic leukemia (ALL) when she was just three months old back in 2015. “The parents were ready to give up. They had no more options. At that stage, they went to see a specialist who had just developed an experimental form of cell therapy.

“And because there was nothing to lose, they said, ‘Let's give it to her.’” At the time, the treatment had never been tried on humans.

“Her doctors gave her a small 1ml infusion of genetically engineered cells.” Nothing happened in the first three weeks but suddenly, in the fourth week, the leukemia cells started to melt

away.

“Spectacularly, over the course of a few months, the cancer burden on the body just disappeared. All this was from just 1ml of cells. This is the promise of cell therapy,” said Dr Lim. Cellular therapy has side effects though. “When you kill the cancer with such ferocity, the chemicals that are released can make the patients quite sick,” he noted.

“One of the big challenges is how we can attenuate the treatments to make it as effective but safer for patients.”

So far, researchers have substantial data on treatments of blood cancers such as ALL and lymphoma. Now, they are beginning to get data on myeloma, another kind of blood cancer, he said.

Researchers now want to see if it works in solid tumors which are more common. If cell therapy can work on solid tumors, the impact would be greater.

Another challenge is the cost of this treatment, which is around US\$300,000. “We obviously need to get the cost down,” he said.

Dr Lim noted that Stem Med, the first private stem cell banking and cellular laboratory in Singapore, is looking at developing cell therapy. “We believe that doing it in Singapore, we could probably make it cheaper and more effective.” Singapore’s advantages are that it has “great regulations, great scientists and great access to healthcare”.

Kymriah was approved for certain paediatric and young adult patients with a form of ALL while Yescarta was approved to treat adult patients with certain types of large B-cell lymphoma who have not responded to or who have relapsed after at least two other kinds of treatment.