



Lee Hui Chieh

To most people, a bone marrow transplant is as familiar as any Japanese, Korean or Taiwanese tearjerker, which often features a protagonist who is dying of leukaemia and needs such an operation.

Stem-cell therapy, on the other hand, sounds experimental, almost the stuff of science fiction.

Yet, the bone marrow transplant, which has been in the medical lexicon for decades, is really a form of stem-cell therapy. It is a transplant of haemopoietic stem cells, or immature blood cells, found in the bone marrow.

Bone marrow transplants have been used here since 1983 to treat blood diseases such as leukaemia.

These and other stem-cell treatments here have been done mostly with adult stem cells. These are immature cells found in the body's tissues or organs that can eventually develop into some or all of the specialised types of cells found in those tissues and organs.

The appropriate stem cells are injected into the body to replace diseased or damaged cells.

The race is on to find new and more effective ways of harnessing stem cells for the treatment of various diseases.

For example, the world's first trial of stem-cell therapy in stroke patients was launched about two weeks ago in Britain. The therapy is aimed at reversing disabilities caused by the stroke.

In the first phase, 12 patients will have neural stem cells – grown in a neural stem-cell line using stem cells from foetal tissue – injected into the affected areas of the brain, between six and 24 months after the stroke.

They will be monitored for two years to see if the stem cells can repair the damaged areas.

Researchers worldwide are also studying stem-cell therapy using embryonic stem cells.

These cells are pluripotent, meaning that they can develop into almost any type of cell in the body and can potentially be used to treat a vast number of diseases.

But their use has been controversial as some people object to them on ethical and religious grounds.

The stem-cell hope

Stem cells, which have the potential to develop into some or all of the specialised cells in tissues and organs provide hope that they can replace damaged cells. The race is on to find new ways to harness them to treat various diseases

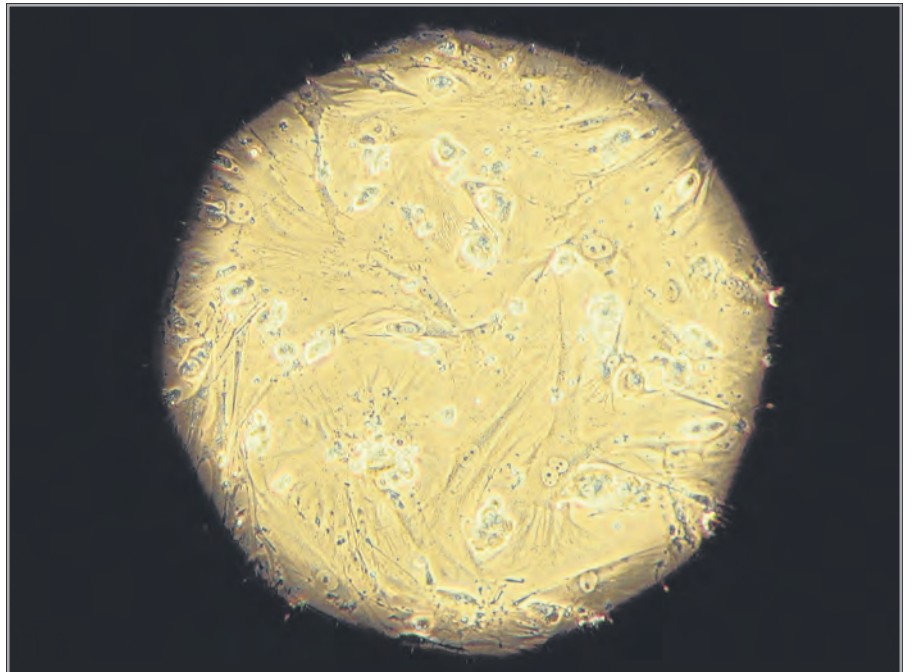


PHOTO: AFP

Embryonic stem cells seen through a microscope viewfinder in a laboratory in Brazil. These cells are usually taken from embryos that are left over from in-vitro fertility treatments and donated for research by the women.

The cells are usually taken from embryos that are left over from in-vitro fertility treatments and donated for research by the women.

Human genetic material is also being introduced into animal eggs to form embryos.

Singapore has only general guidelines on stem-cell research, but no national regulations.

The Ministry of Health is drafting a new Bill on stem-cell research, to “ensure that such research operates within boundaries acceptable to society”.

The Bill will be ready probably by next year.

The ministry is also studying the possibility of licensing cell- and tissue-based therapeutic services.

In Singapore now, a doctor who performs any form of stem-cell therapy on patients has to ensure that the therapy is backed by scientific evidence and accepted by the medical profession.

Therapy which has yet to be proven or become accepted medical practice can be administered only under a clinical trial.

The trial has to be approved by the hospital's ethics committee before it can proceed.

The quality, safety and efficacy of cell- and tissue-therapy products, like other biological medicinal products, are regulated under the Medicines Act.

huichieh@sph.com.sg