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Cell therapy safe to use in liver patients, clinical trial suggests

Liver disease patients could one day benefit from a new cell therapy that has just completed its first clinical trial.

Researchers who tested the potential treatment in patients with liver cirrhosis – where long term damage produces scarring – found the therapy had no significant adverse effects.

Now the team, based at the University of Edinburgh’s MRC Centre for Regenerative Medicine, is to gauge the effectiveness of the treatment – which is based on white blood cells called macrophages, that are key to normal liver repair.

The next stage of the trial will measure whether the therapy helps the liver to reduce scarring and stimulate regeneration. The results should be known within the next two years.

At present the only successful treatment for end-stage liver cirrhosis – which claims around 14,000 lives in the UK each year (British Liver Trust) – is an organ transplant. The safety trial is a vital step forward in finding an alternative therapy.

During the trial scientists took cells from the blood of nine patients with the disease and turned them into macrophages, in the Scottish National Blood Transfusion Service’s (SNBTS) cell therapy facility. The new cells were then re-injected into the patient with the hope of repairing the damaged organ from within.

The research, published in the journal *Nature Medicine*, received funding from the Medical Research Council.

The study was conducted in partnership with the SNBTS and the Cell and Gene Therapy Catapult.

Causes of liver cirrhosis include infections such as hepatitis C, obesity, alcohol excess and some genetic and immune conditions.

Professor Stuart Forbes, of the MRC Centre for Regenerative Medicine at the University of Edinburgh, who directed the trial, said: “Liver cirrhosis is a major healthcare issue in the UK and is one of the top five killers. The results from this first safety trial are encouraging and

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we can now progress to testing how effective it is in a larger group of people. If this was found to be effective it would offer a new way to tackle this important condition.”

Dr Robin Buckle, Chief Science Officer, Medical Research Council, said: “The goal of regenerative medicine is to drive the body to self-repair. This has the potential to provide long-lasting treatments for major and often untreatable health problems, such as liver cirrhosis.

“MRC is proud to fund this study which is an important first step in transferring cutting-edge science to the clinic. This will pave the way for testing the effectiveness of this new cell therapy in patients who would otherwise require a liver transplant.”

Pamela Healy, CEO of the British Liver Trust, said: “Across the UK we are facing a liver disease epidemic. The number of people affected has been rising at an alarming rate and liver disease is now the biggest killer of 35 to 49-year olds.

“Chronic liver disease occurs when the liver is damage irreparably and becomes scarred (cirrhosis). At this stage, there are very few treatments available. This new innovative approach is an exciting development and could in the future reduce the need for transplantation. More research is needed and the next stage of this work will be to really test the potential benefit for patients.”

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