



Menstrual Blood Hope for Heart Repair

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Most women find their monthly menstrual cycle to be a discomfort and never look forward to those 5 days of trouble. Japanese researchers however say that menstrual blood can help repair damaged hearts. The researchers have published their initial findings in the online edition of the journal *Stem Cell*.

If the findings are verified, they could be the way out to the opposition faced by stem cell treatment. Embryonic stem cells are currently seen as the best treatment option for organ or tissue repair as they have the potential to turn into any types of cells in the body. These cells can however only be harvested from embryos, which raises the question of ethics, an issue that has brought in strong opposition.

On the other hand, adult stem cells can be derived from organs such as bone marrow, but the procedure is extremely painful and invasive. There has been recent hope of bypassing this procedure as well as the ethics issue in the success achieved by Japanese and US researchers in transforming human skin cells into stem cells with the same properties as embryonic stem cells.

The new study offers yet another way out for treating the heart. The study was conducted jointly by researchers at the Keio University's School of Medicine and the National Institute for Child Health and Development. Menstrual blood was collected from nine women and cultivated for about a month. The researchers were focusing on one particular cell that can act in a fashion similar to stem cells.

When the cells were put together in vitro with cells taken from the hearts of laboratory rats, it took just three days for around 20 percent of the cells to start beating spontaneously. Eventually, the cells from menstrual blood evolved into sheet-like heart-muscle tissue.

Dr. Shunichiro Miyoshi, one of the study's authors, informed that the success rate achieved by them is 100 times higher than the 0.2-0.3 percent achieved

with stem cells derived from human bone marrow. When cells derived from menstrual blood were injected into the hearts of rats who had suffered heart attacks in separate in-vivo experiments, the rodents should marked improvement.

According to Dr. Miyoshi, in the future, their findings might allow women to use their own menstrual blood to treat their damaged hearts. There may be a system in the near future that allows women to use it for their own treatment, Dr. Miyoshi said.

The findings are also important because they remove the major hurdle of rejection by the patients immune system as cells come from the patients own blood. In Dr. Miyoshi's opinion, menstrual blood makes it possible to create a bank of cells with variety of matching human leukocyte antigens or HLAs, which are a key part of the human immune system. These cells can be preserved for extended periods to be used when required.

In proper storage, we would be able to stock up a tremendous count of cells in a small space. If they are not used for 100 years, they could stay there for 200 years or 300 years waiting for a perfect match, he said.

The researchers clarified that the connective cells taken from menstrual cells are different from stem cells as, unlike the former, the latter can turn into any type of cell in the body. At the same time, they found that menstrual cells could also develop into muscle cells easily, which opens up the possibility of using them to treat muscular dystrophy.

The researchers also found that the age of the donor women did not have any effect on the capability of the cells. Despite the positive findings in which the rats hearts showed improvement in the form of increased power of compression, the results fell short of the researchers expectations. I guess this cant be ready for clinical use yet. There should be a definite factor that turns the cells into a heart and we want to find it, Dr. Miyoshi concluded.