

# Stem cell-stimulating therapy saves heart attack patients

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Researchers at the Society of Nuclear Medicine and Molecular Imaging's 2014 Annual Meeting revealed how a protein encourages the production of stem cells that regenerate damaged tissues of the heart following an acute attack (myocardial infarction). They further assert that it has a better chance of working if provided early in treatment. This was confirmed by molecular imaging, which captured patients' improved heart health after therapy.

If given after a heart attack, granulocyte colony-stimulating factor (G-CSF) mobilizes bone marrow [stem cells](#) that turn down the collateral damage of cell death that occurs after [acute myocardial infarction](#). Other research has shown G-CSF having a beneficial impact on left ventricle ejection fraction, a measurement of how powerfully the heart is pumping oxygenated blood back into the aorta and the rest of the body with each beat. The objective of this study was to find out how beneficial the stem cell-stimulating therapy would be if administered early during standard treatment. Early prescription of G-CSF happens to strengthen its effect immediately and after follow up.

"Previous studies have shown that giving G-CSF to unselected [heart attack patients](#) failed to satisfactorily improve their condition, but G-CSF may potentially be beneficial if given earlier than 37 hours following myocardial infarction and coronary intervention," remarked Takuji Toyama, MD, the study's principal researcher from the division of cardiology at Gunma Prefectural Cardiovascular Center in Maebashi, Japan. "This study shows that the first intravenous drip infusion of G-

CSF during treatment just after hospitalization was able to rescue our patients. I am confident that with additional data from a forthcoming clinical trial, this protocol can be adopted as a standard of practice."

For this study, 40 consecutive patients with acute [myocardial infarction](#) were given either G-CSF therapy or saline intravenously for a total of five days beginning during a selected minimally invasive treatment, otherwise known as percutaneous cardiac intervention. Results of one year's worth of SPECT stress tests nailed how earlier start of G-CSF therapy in heart attack patients improves blood flow, access to essential energy and overall cardiac function.

Coronary heart disease caused one out of every six fatalities in the U.S. in 2010, according to 2014 statistics from the American Heart Association. An estimated 620,000 Americans suffered a first heart attack, and 295,000 had a recurrent episode. Collectively, heart attacks occur about once every 34 seconds. Coronary events cause about 379,559 deaths each year.

**More information:** Scientific Paper 239: Takuji Toyama, Hiroshi Hoshizaki, Hakuken Kan, Ren Kawaguchi, Hitoshi Adachi, Shigeru Ohsima, Division of Cardiology, Gunma Prefectural Cardiovascular Center, Maebashi, Japan; Masahiko Kurabayashi, Department of Cardiovascular Medicine, Gunma University School of Medicine, Maebashi, Japan, "Is the granulocyte colony-stimulating factor therapy in the earliest phase effective to rescue patients with acute myocardial infarction?" SNMMI's 61th Annual Meeting, June 7, 2014, St. Louis, Missouri.

Provided by Society of Nuclear Medicine

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