

Glossary

Gary D. Lopaschuk

cMR

cMR stands for cardiac magnetic resonance. MRI (magnetic resonance imaging) is a procedure that creates images of the body using powerful magnets and radio waves. cMR involves the imaging of the heart using this procedure.

MRI

MRI stands for magnetic resonance imaging. MRI is a procedure that creates images of the body using powerful magnets and radio waves. This non-invasive technique relies on the magnetic properties of atoms, rather than radiation. The imaging procedure utilizes extremely powerful magnets to create the radiowaves that produce the image.

Na⁺/Ca²⁺ exchanger

The Na⁺/Ca²⁺ exchanger is a membrane ion transporter that exchanges Na⁺ for Ca²⁺. During and following ischemia, the accumulation of intracellular Na⁺ can exchange with extracellular Ca²⁺. This can lead to Ca²⁺ overload and cell injury.

Na⁺/H⁺ exchanger

The Na⁺/H⁺ exchanger is a membrane ion transporter that exchanges Na⁺ for H⁺. In the heart, it is one of a number of pathways to extrude protons (H⁺) from the heart. However, this is coupled with a net inward flux of Na⁺. During and following ischemia, Na⁺/H⁺ exchanger activity increases, due to the ischemic-induced increase in intracellular acidosis. The increased Na⁺/H⁺ exchanger activity can lead to Na⁺ overload in the ischemic heart, which can decrease cardiac efficiency (energy is needed to extrude this Na⁺) and contribute to cell injury.

Na⁺/K⁺ ATPase

Na/K-ATPase is an ion pumps involved in the transport of Na⁺ and K⁺ across membranes. This involves the pumping of these ions against a concentration gradient, and therefore energy is required, which is

provided by the hydrolysis of ATP, the main energy currency in cells (hence the name ATPases). Na/K-ATPase pumps Na⁺ out of cells, while simultaneously pumping K⁺ into cells.

PCI

PCI stands for percutaneous coronary intervention, commonly known as coronary angioplasty. It is an invasive therapeutic procedure that involves passing a catheter into the coronary arteries of the heart. This catheter is used to open a blocked artery, either by inflating a balloon to open the artery, or by delivering a metal stent into the stenotic coronary artery. PCI can reduce the symptoms of coronary artery disease, including angina and congestive heart failure. PCI is also used to stop an acute myocardial infarction by reintroducing coronary blood flow into an area of the heart that is ischemic.

TIMI

TIMI is an acronym for thrombolysis in myocardial infarction; a large multicenter controlled clinical trial. This clinical trials group that performed this and other trials established a universally used coronary flow grading system to assess epicardial reperfusion, and demonstration of correlation between TIMI flow grade and survival in patients with STEMI. This uses a TIMI Frame Count to enhance reproducibility of the angiographic assessment of coronary blood flow. The TIMI Myocardial Perfusion Grade to assess tissue level reperfusion with demonstration of independent effects of these measures on survival.

SERCA2a

SERCA stands for sarcoplasmic/endoplasmic reticulum calcium ATPase. SERCA is the enzyme primarily involved in the transport of calcium into intracellular sarcoplasmic reticulum and endoplasmic reticulum. The sarcoplasmic reticulum (SR) is an intracellular organelle in heart and skeletal muscle that stores calcium. During excitation-contraction coupling, release of calcium from the SR is the major source of calcium that initiates muscle contraction.

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STEMI

An acute coronary event is associated with the sudden rupture of plaque inside the coronary artery. This can cause changes in electrocardiogram, which include ST segment elevation. A myocardial infarction that is accompanied by this ST segment elevation is called a STEMI (ST segment elevation myocardial infarction).

TRS

TRS stands for TIMI Risk Score. TRS for unstable angina, STEMI, or nonSTEMI acute coronary events use simple risk scores derived from baseline clinical information to predict clinical outcomes and improve therapy in patients with unstable angina, STEMI, or nonSTEMI.