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(54) Title: SYSTEMS AND METHODS FOR CONTROLLING A HEART PUMP TO MINIMIZE MYOCARDIAL OXYGEN CONSUMPTION

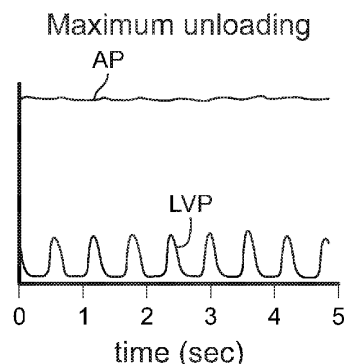


FIG. 3C

(57) Abstract: Various systems, devices, and methods are disclosed herein for healing acute myocardial infarction (AMI) patients using a heart pump controlled in a manner that maximizes mechanical unloading of the left ventricle in the presence of cardiovascular instability and minimizes myocardial oxygen consumption (MVO₂) and consequentially infarct size to prevent the development of subsequent heart failure. In a closed feedback system, the system can include a sensor configured to generate an output used to measure or calculate a left ventricular systolic pressure (LVSP) within the left ventricle of a heart and a controller coupled to a heart, pump. The controller can be configured to measure or calculate the LVSP based on the output of the sensor and to control an operation of the heart pump to maximize mechanical unloading of the left ventricle based on the measured or calculated LVSP.

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