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(54) Title: A METHOD FOR ASSESSMENT OF A HEMODYNAMIC RESPONSE TO AN ADENOSINE RECEPTOR AGONIST
STIMULATION, SYSTEM FOR ASSESSMENT OF IT AND COMPUTER READABLE MEDIUM

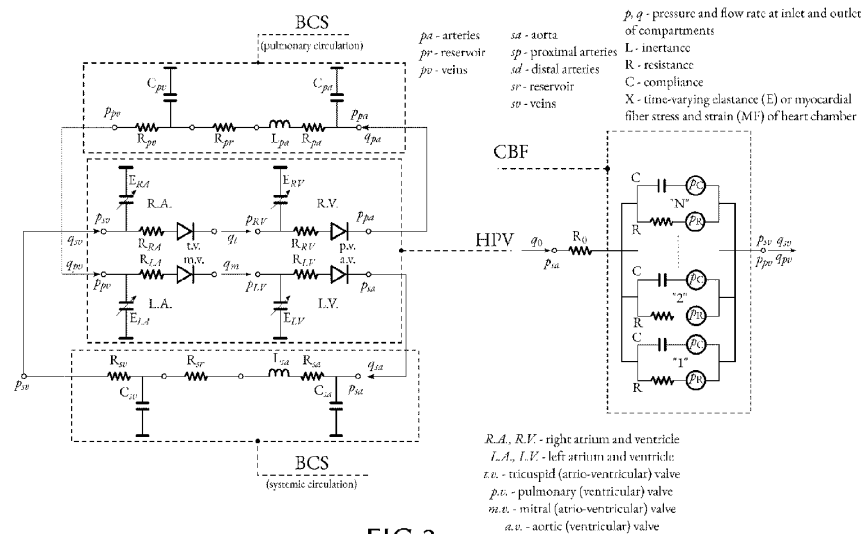


FIG.3

(57) Abstract: A method, a computer-readable medium and a system for assessment of a hemodynamic response to an Adenosine receptor agonist stimulation for a human patient are disclosed. Starting point for the method are non-invasive pressure data in the resting state. Said data are used in pharmacokinetic/pharmacodynamic modeling to arrive at an individual patient-specific response for an adenosine receptor stimulation by an agonist. This response is used to calibrate lumped-parameter Windkessel type model of a blood circulation. The calibrated model allows for calculating of hemodynamic parameters for the hyperemic state, in particular to calculate flow and pressure values in both coronary arteries inlets. The hemodynamic parameters allow for *in silico* coronary vessel diagnostic. The effectiveness of the developed method has been confirmed in multi-center clinical trials.

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