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(54) Title: ASSESSMENT OF MYOCARDIAL PERFUSION USING NON-INVASIVE MEASUREMENTS AND POROMECHANICS

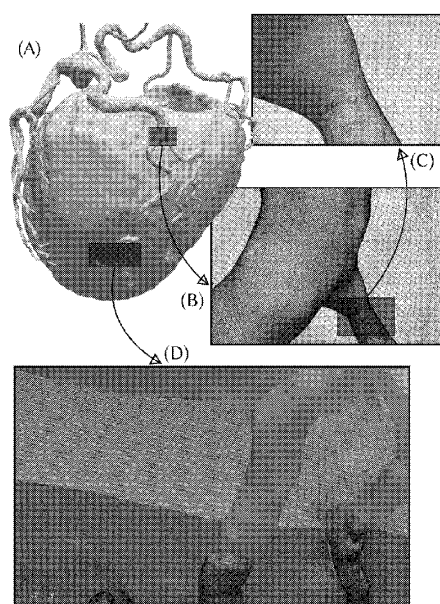


FIG. 4

(57) Abstract: The invention provides a method for describing flow dynamics in a tissue or organ using a numerical model of blood flow. In one aspect, the invention pertains to a method for assessment of myocardial perfusion using a non-invasive measurement and poromechanics, involving computational fluid dynamics, for a human patient. The method can be realized as a computer-implemented invention. The method comprises generating an anatomical geometry model of a myocardium connected with a plurality of coronary vessels using patient-specific anatomical structure data obtained from said non-invasive measurement. The anatomical geometry model is a composition of fluid and porous domains with their boundaries. The invention cures insufficiencies of the known in vivo methods, including all the risks related to invasive procedures. Moreover, a practically unlimited spatial-temporal resolution is achieved, the result of the invention is completely free of motion artifacts and the patient exposure to radiation is limited.



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