Purpose: A new approach is presented to extract the coronary artery blood flow patterns from the angiographic data and to calculate the parameter to evaluate the heart function.

Methods: This method uses five patients' coronary angiographic data. Firstly, use a 'seed' method to extract the coronary artery in a completely automatic way. Secondly, acquire the blood flow patterns from the angiographic data with a 'dynamic registration' method and save the result image sequence as an AVI file. Finally, calculate the heart function parameter (velocity of blood flow) by frame counting method.

Results: The accurate boundary of the coronary artery and the blood flow is clearly presented, and the velocity of blood flow is similar to the Dopller ultrasound measurement.

Conclusions: This method is shown with good performance, particularly in modeling the blood flow patterns and calculation of heart function parameter. It provides not only an automatic, fast, real-time and accurate method in precise diagnosis and treatment of coronary disease, but also a complementary criterion to evaluate the heart function, and then predict the recovery.