

## Abstract

The primary purpose of the proposed study is to determine Fractional Flow Reserve (FFR) by using dataset acquired by Optical Coherence Tomography (OCT). Several geometrical parameters of coronary arteries were calculated to find the severity of the arterial stenosis. The Optical Coherence Tomography (OCT) of 30 patients were performed and 41 coronary arterial stenosis were assessed, and their Fractional Flow Reserve (FFR) value was computed by implementing blood-flow model.

In the proposed study both the modalities, Optical Coherence Arterial and Fractional Flow Reserve are combined for the characterization of coronary plaques. The data acquired by Optical Coherence Tomography is labeled and different image processing techniques are applied in MATLAB software for having a precise value of Fractional Flow Reserve. The Fractional Flow Reserve is highly important for the identification of Myocardial Ischemia (MI). It identifies the extent that how much the heart cells have been weakened and what would be the most suitable treatment depending upon the ratio of Fractional Flow Reserve. The stenosis having Fractional Flow Reserve value less than 0.8 are considered to be severe.

The Fractional Flow Reserve value and several OCT parameters like Minimal Lumen Area (MLA) and Minimal Lumen Diameter (MLD) were found to be considerably correlated.