Presently, coronary catheterizations and interventions are more often performed by a radial artery approach than by a previously dominant femoral artery approach due to the lower incidence of both local and systemic complications. In addition, based on evidence of lower mortality associated with this approach, the radial approach has received class IA recommendation in the 2015 European Society of Cardiology (ESC) guidelines for interventional treatment of NSTEMI, in the 2017 ESC guidelines for STEMI and lately in the 2018 ESC guidelines for other forms of ischemic heart disease.

Although a large number of studies concerning the radial approach have been published, many questions remain unanswered; for example, the evaluation of the radial approach in patients with myocardial infarction complicated with cardiogenic shock. The assessment of radial artery occlusion as the most frequent local complication of this approach has been very heterogeneous so far both in terms of different methods of detection that were used and timing of their application. Thus, there are still possibilities to further reduce the incidence of local complications and to optimize methodology of radial artery occlusion detection.

In this dissertation thesis we address the issue of interventional treatment via radial artery access site in patients with acute myocardial infarction complicated by cardiogenic shock, also evaluate local complications after transradial cardiac catheterization in different clinical settings, compare two different methods of arterial compression after the procedure and, finally, compare the effectivity of the reverse Barbeau test and duplex ultrasonography as two commonly used methods for detection and confirmation of the patency or occlusion of the radial artery.

Key words: radial approach, cardiogenic shock, local complications, radial artery occlusion detection