

OTHER: INNOVATIVE DEVICES AND FUTURISTIC THERAPIES (TCTAP A-069 TO TCTAP A-075)

TCTAP A-069

Assessment of Coronary Stents Strength with the Recreated Model of Myocardial Bridge

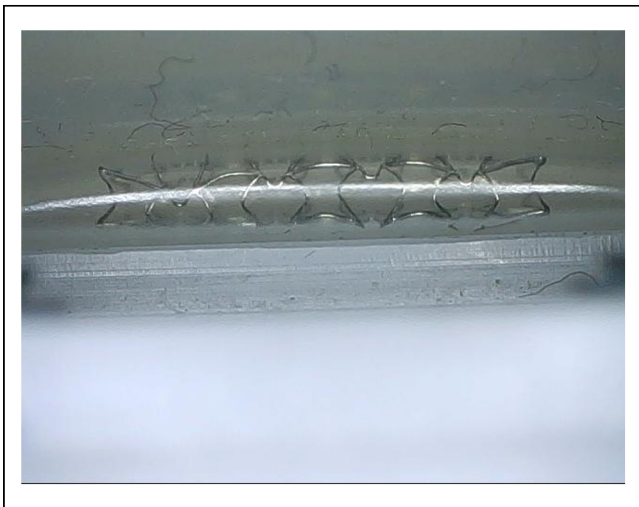


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BACKGROUND Currently there are more patients with anomalies which called “myocardial bridge”. Existing methods of treatment of myocardial bridges are conservative and surgical treatment. Different information of stenting shows that stents often break, when installed into the tunnel segment, sometimes it leads to perforation of the vessel. But there are also reports of successful attempts of stenting myocardial bridges. The purpose of this work was to evaluate the strength characteristics of stents in the reconstructed model of the myocardial bridge.

METHODS To find out the cause of stent breaking by the myocardial bridge, the force of the myocardial bridge pressure of a patient was measured according to the procedure developed in our hospital and it was 0.012 N/mm. After that, we decided to recreate the model of myocardial bridges, by experience in vitro and simulate how stents it work. The model of the “myocardial bridge” was created and the device was patented. The pressure of the myocardial bridge of 0.012 N / mm was exposed. In order to obtain a quick result, the oscillation frequency simulating was set at 250 beats per minute. For the study 2 types of stents of different manufacturers were used. Stents were placed in a tube of polytetrafluoroethylene. The results of the experiment were recorded on the USB camera, until the moment when the stents are broke.

RESULTS During the experiment the first stent completely broken after 16 days from the beginning of the research (pic.1, 2). 16 days matches to 41 days in real conditions with a normal heart beat ranging from 60-80 beats per minute. The second stent functioned for 2 months, during this time there were no any defects in the stent (pic 3).



CONCLUSION In the experience we conclude that stents differing structure, composition in myocardial bridges could function variously. Previous opinion that installation of stents in a myocardial bridge will always lead to stent failure is probably not true for different kinds of stents. The device can used in the research field to assess the strength characteristics of modern coronary stents.

TCTAP A-070

Innovative Care Model Can Reduce Radiation Exposure in Patients Received Percutaneous Coronary Intervention Patients



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BACKGROUND Previous evidence showed any radiation might carry a risk of skin or eye damage, malignant disease, or other hazards, which the U.S. radiation protection standards were also established based on this premise. However, most interventional cardiologists neglected the protection of radiation exposure to the patients or operators. This aim of the study is to investigate the impact of innovative care model