ASSESSMENT OF PERIPROCEDURAL MYONECROSIS BY MEANS OF MAGNETIC REZONANSE DELAYED ENHANCEMENT IN PATIENTS WITH BIFURCATION LESIONS AFTER MAIN VESSEL STENTING ONLY

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Background: The factors governing periprocedural myonecrosis are not completely clear. Percutaneous Coronary Intervention (PCI) of bifurcation lesions is considered as high risk procedure. Delayed enhancement magnetic resonance imaging (LGE MRI) of the heart has a proven role for quantifying areas of myocardial injury. We used LGE MRI to assess myonecrosis in the area supplied from the side branches (SB) of bifurcations.

Methods: Forty-five patients with stable coronary artery disease were studied with 1.5T MRI before and after (within 72h) stenting of bifurcation lesions. The left ventricular function and late gadolinium enhancement (LGE MRI) were assessed. We performed angiographic measurements of the minimal lumen diameters, reference vessel diameters of main vessels and side branches and bifurcation angle pre- and post-intervention.

Results: After interventional procedure 23 (51%) patients had evidence of new myocardial enhancement (3.1 ± 3.3 grams, 2.9% ± 4.8% of left ventricle mass). There was a good correlation between LGE MRI and troponin I elevation pre- and post-procedure (r=.653, p=.029 and r=.785, p=.001). There was a significant difference in the diameter of the SB ostium after stent placement in patients with and without presence of new LGE MRI in the area supplied by SB (with LGE -.59±.20 mm vs. without LGE .97±.47 mm, p=.035). There was a significant correlation between ostial diameter post stenting and main vessel-side branch distal angle (r=.565, p=.018) and strong trend between this angle and myonecrosis assessed by LGE (r=.435, p=.081).

Conclusion: Post procedure minimal lumen diameter at side branch ostium and main vessel - side branch distal angle can predict the postprocedural myonecrosis after bifurcation lesions stenting.