USEFULNESS OF THE NOVEL ULTRASONOGRAPHY “VASCULAR ELASTOGRAPHY” FOR PERIPHERAL ARTERY DISEASE

ACC Moderated Poster Contributions
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Background: The success rate of endovascular therapy (EVT) for chronic total occlusion (CTO) of femoropopliteal arteries (FA) has improved because of devices development and the introduction of the echo guided EVT. But now this is still challenging. Elastography is a ultrasonographic method that has been examined as a diagnostic tool for breast lesions. We applied this method to hardness measurement of CTO lesions by our original method. Our aim was to investigate the usefulness of the novel ultrasonography (US) “vascular elastography (VE)” for EVT.

Methods: In 516 consecutive cases which underwent EVT between April 2010 and September 2011, we focused on 57 cases of EVT for CTO of FA. We assessed the CTO lesions by duplex US and “VE” about lesion morphology with our original methods before procedure. US was performed with 8 MHz linear transducer (Aprio XG, TOSHIBA, Japan), and off-line analysis was performed with elasto-Q (TOSHIBA, Japan). We originally categorized into five types by original VE score. Comparing investigation about procedure results was performed between hard group (H group: VE score 0-2) and soft group (S group: VE score 3-4).

Results: We could assess elastogram of target lesions in all cases. In cases of lesion length>150mm (H group: 12 vs. S group: 8 cases), cases in S group could be penetrated with hydrocoat soft guidewire (16.7 vs. 75%; p=0.02). In cases of long CTO, lesion length>150mm (21 vs. 15 cases), hydrocoat soft guidewire passed lesions (9.5 vs. 60.0%; p=0.01). Retrograde approach from popliteal artery was needed in only H group (42.9 vs. 0%; p=0.03). Operation time in H group was longer than S group (152.9±63.2 vs. 87.0±29.8min; p<0.001). In 6 cases, CTO site was assessed soft with thrombus. Therefore we successfully performed thrombectomy and distal protection preventing for distal embolism. Hard plaque which difficultly penetrated without calcification by US could be assessed in 10 cases. In 11 cases with VE score 4, hydrophilic soft guidewire could pass the lesion easily at the site of soft appearance by VE.

Conclusions: “VE” might be useful when we decide strategies and selections of device in EVT because we could assess the vascular morphology noninvasively before procedure.