Abstract: P2691

Excimer laser coronary angioplasty can achieve favorable clinical outcomes for in-stent restenosis lesion with neoatherosclerosis

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Background: Recent reports revealed that residual area stenosis (% AS) ≤30% after lesion preparation is a suitable predictor for target lesion revascularization (TLR) after drug-coated balloon (DCB) treatment for in-stent restenosis (ISR). Excimer laser coronary angioplasty (ELCA) can obtain larger lumen area and may be more useful for lesion preparation than plain old balloononing (POBA). On the other hands, it has been reported that in-stent neoatherosclerosis (NA) is major cause of restenosis. It is unclear the correlation between NA of ISR and the effect of ELCA. Thus, we compared the influence of NA which was evaluated by optical coherence tomography (OCT) on % AS for ISR treatment between ELCA and DCB (ELCA) group and POBA and DCB (non-ELCA) group and their clinical outcome.

Methods: We enrolled 58 consecutive ISR lesions which were treated by OCT guidance between July 2014 and July 2018 in our hospital. The lesions were divided into NA and non-NA lesions according to OCT findings. In each lesion, we compared post procedural % AS and % AS change which was calculated by the difference between pre and post procedural % AS between ELCA and non-ELCA groups. In addition, we compared 8-month major advance cardiac events (MACE) defined by composite of binary restenosis and target lesion revascularization (TLR) between ELCA and non-ELCA group in NA lesions.

Results: There were 19 NA (33.3%) and 39 non-NA lesions. In NA lesions, ELCA group can obtain significantly lower % AS (p=0.02) and significantly larger % AS change (p<0.01) than non-ELCA group, but in non-NA lesions, % AS and %AS change were similar between ELCA and non-ELCA groups (table). In 8-month clinical outcome, non-ELCA group experienced MACE twice as much as ELCA group did. (31% vs 17%)

Conclusion: Although neoatherosclerosis is correlated with refractory restenosis, ELCA can improve residual area stenosis in neoatherosclerosis lesions and can achieve better clinical outcomes for in-stent neoatherosclerosis.

<table>
<thead>
<tr>
<th></th>
<th>NA lesions (n=19)</th>
<th>P value</th>
<th>non-NA lesions (n=39)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ELCA group (n=6)</td>
<td>non-ELCA group (n=13)</td>
<td>ELCA group (n=17)</td>
<td>non-ELCA group (n=22)</td>
</tr>
<tr>
<td>Post %AS (%)</td>
<td>2±21</td>
<td>26±25</td>
<td>0.02</td>
<td>7±29</td>
</tr>
<tr>
<td>%AS change (%)</td>
<td>71±15</td>
<td>38±19</td>
<td>&lt;0.01</td>
<td>56±29</td>
</tr>
</tbody>
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