Usefulness of Tissue Perfusion Monitoring for Peripheral Artery Disease during Endovascular Therapy

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**Background**

- Although skin perfusion pressure (SPP) is widely used clinically to predict probability of wound healing, it has not been reported that skin perfusion (SP) is useful for assessing endpoint for endovascular therapy (EVT) for peripheral artery disease (PAD) during procedure.

**Objective**

The aims of this study was to determine whether SP monitor during procedure is useful for assessing the endpoint for EVT for PAD.

**Materials & Methods**

112 limbs in 77 patients (54 men; age 48-97 years [mean 73.0 years] who SPP improved postoperatively among 90 patients were underwent successful EVT for PAD and intraoperative SP and SPP between January 2014 and November 2014. This study included 37 lesions in the iliac arteries, 60 lesions in the superficial femoral arteries and 18 lesions in the below the knee arteries. SPP and SP was measured using MV monitor PLUS System (Nexis Corp, Fukuoka, Japan) (Fig.1). Change of SP in dorsal and planter region and correlation between SPP and SP at dorsal and planter region were retrospectively assessed.

**Table 1 Baseline Patient Characteristic**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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<tr>
<td>Age (years)</td>
<td>73.0 ± 16.0</td>
</tr>
<tr>
<td>Gender (male/female)</td>
<td>54/23</td>
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<tr>
<td>Lesion site</td>
<td>Lower extremity</td>
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</table>

**Results**

SP at dorsal and planter region after EVT were significantly improved in all cases (Fig.2,4). And there was statistically positive correlation between SPP and SP at dorsal and planter region (Fig. 3).

**Discussion**

SPP has proven to be beneficial for assessing lower limb ischemic severity. Castronuovo et al. (1) reported SPP is useful for predicting wound healing at the amputation edge in critical limb ischemia (CLI) patients. Utsunomiya et al. (2) reported immediate SPP after EVT is also an independent predictor of wound healing in patients with CLI. So SPP is useful not only predictor of healing by surgical amputation but also but wound healing after EVT.

On the other hand, SP is a continuous microcirculation monitor that is influenced by the outside environment; however, no research has been published with regard to the effectiveness of the SP for PAD during EVT. Although the inclusion criteria in this study were limited to cases SPP was increased after EVT, SP was also significantly increased after EVT in all cases. Our result demonstrated there is statistically positive correlation between SP and SPP. This result may indicate SP is useful for decision of endpoint by EVT. To our best knowledge, this is first report of usefulness of SP for EVT.

Although asymptomatic distal embolization during EVT procedure occurred in two patients in our study, it was easily was detected by SP monitor and immediately intraarterial thrombolysis was performed. No ischemic complication occurred in both cases due to thrombolysis.

**Conclusion**

SP is useful for monitoring and assessing the endpoint for EVT for PAD.

**References**