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[\[PDF \(282K\)\]](#) [\[References\]](#)**Normalization of high-flow or removal of flow cannot stop high-flow induced endothelial proliferation**Misa YAMAUCHI¹⁾, Masato TAKAHASHI¹⁾, Mikio KOBAYASHI¹⁾, Eiketsu SHO¹⁾²⁾, Hiroshi NANJO³⁾, Kouichi KAWAMURA¹⁾ and Hirotake MASUDA¹⁾

1) Division of Cellular and Organ Pathology, Department of Pathology and Immunology, Akita University School of Medicine

2) Department of Surgery, Stanford University School of Medicine

3) Division of Clinical Pathology, Akita University Hospital

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ABSTRACT

Endothelial cells (ECs) are activated in response to high-flow. Our previous studies using arteriovenous fistula (AVF) model have demonstrated that high-flow in blood vessels induces an early and rapid proliferation of ECs before arterial dilatation. Here, we investigated the proliferation of ECs, which had once been stimulated by high-flow loading, in a situation without the influence of high-flow. First, we induced high-flow in the rabbit common carotid artery by using AVF. Then, we removed the influence of high-flow by normalization of high-flow with the closure of AVF or by removal of flow itself with tissue isolation and organ culture or with cell culture of ECs, at the timing considered that ECs began to proliferate. Kinetics of ECs was investigated by a laser scanning confocal microscopy, phase-contrast microscopy and light microscopy using bromodeoxyuridine labeling method. We found that ECs, which had once been stimulated by high-flow, transiently proliferated even after normalization of high-flow or removal of flow. We assume that proliferation of ECs is promised when these cells start to proliferate after high-flow loading.

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