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**How to maximize the efficiency of pre-emptive vascular access correction
against thrombosis**

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The maintenance of vascular access (VA) is essential for hemodialysis patients. Thrombosis of vascular access can result in VA abandonment. Pre-emptive correction of VA stenosis against VA thrombosis is strongly recommended now. It is true that the thrombosed VA has a stenosis, which is the culprit lesion of a thrombotic event, within its circuit. However, all stenoses are not the same. Some stenoses are very stable for a long time without causing VA thrombosis whereas the others are not. Therefore, it is very important to define the characteristics of stenoses and discriminate the unstable stenoses from the stable ones. In addition, balloon angioplasty, which is a primary tool in endovascular procedures, basically enlarges the narrowing by tearing vessel wall, which is called a vascular remodeling. So unnecessary use of balloon angioplasty can shorten VA survival by damaging vessel qualities.

Minimizing the numbers of pre-emptive correction for the whole VA survival without VA thrombosis is a key. Depending on only the figures of VA flow volume (Qac) without considering clinical relevance is also incorrect. The current widely used VA surveillance method is a indirect VA flow volume (Qac) measurement. The indirect flow measurement is preferred because of its less variability of Qac. Duplex ultrasound (DU) can not only measure Qac but also visualize the whole VA including a stenosis. Therefore, the combining both indirect Qac measurement and DU is more appropriate for VA surveillance to minimize the numbers of pre-emptive correction.