

Abstract

Venous Tourniquet and Handgrip Exercise as Simple Pre Operative Vein Mapping in Limited Resources Hospital

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Introduction:

The number of hemodialysis patient in Indonesia increased every year, as well the number of patient needs the creation of AV fistula. In our center, there are approximately more than 200 AV fistula surgeries annually, and most of the patients were poor people. The government insurance for poor people however, has a very tight budget for each surgery. This is a big challenge for vascular surgeon, who must perform the surgery with very limited resources. There is no pre operative ultrasound guided vein mapping, to determine venous quality. Venous mapping is very important since most of the patient consulted to our department has been hemodialized several times, resulted in poor arm veins quality.

Method:

We applied a simple tourniquet (venipuncture tourniquet) in the upper arm, and ask the patient to perform handgrip exercise for about 15-30 second, with the position of the arm downward; if the vein started to bulge, we palpate the vein to determine the quality of the vein. If the vein is not bulge, hard, or non-compressible, we decided not to performed the AV fistula on the wrist, but in the cubiti. We marked the compressible vein with ink marker, and then performed the surgery. The success of surgery defined as the occurrence of thrill or bruit after anastomosis.

Results:

From July 2011 to July 2012, there were 91 AV fistula surgeries performed by one surgeon. There were 76 radiocephalic fistula performed, and 11 (14.5%) were converted to cubiti fistula; this because the vein is too small (<1.5mm), fibrotic, partially or totally thrombosed. There were 15 primary cubiti fistula performed because the cephalic veins were considered as not suitable for wrist fistula (not bulge, hard, or non-compressible).

Discussion and Conclusions:

Venous tourniquet is common method used by nurses to obtain blood sample. The purpose of this technique is to determine the accessibility of the vein prior to cannulation. This simple technique combined with handgrip exercise is an effective method to determine veins quality prior to AV fistula creation.