Hemostatis after TRI

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History of TRI in Japan

Trans radial intervention (TRI) was first performed by Dr. Kiemeneij in the Netherlands in 1992.

In 1995 Dr Saito started to perform TRI and recently over 30% PCI is performed by TRI in Japan. (50,000cases/year)

There was no hemostatic device available for TRI before 1999.
An Early Hemostatic Device

Stepty®-P (NICHIBAN), with a stretchable belt for reinforcement, was widely used as a hemostatic device after TRI was introduced into Japan.
Problems with Stepty-P

1) Skin complications caused by the adhesive tape,

2) Difficulty of adjusting the pressure exerted by the belt,

3) Swelling of the palm of the hand and pain caused by pressure on the wrist.
Development of Hemostatic Device for TRI

The new devices were improved as follows:

1) Pressure can be adjusted.
2) There is little skin irritation.
3) They allow a good view of the puncture site, so early detection of postoperative complications is possible.
4) Since the ulnar side is not under pressure, the blood flow of the palm is secured.
New Hemostatic Device for TRI produced in Japan

A: Air bag type
   TOMETA-KUN (ZEON MEDICAL)
   TR Band (TERUMO)

B: Stretchable belt type
   Adapty (MEDIKIT)
   Radispo (ZEON MEDICAL)
TOMETA-KUN(1)
TOMETA-KUN(2)
TOMETA-KUN(3)
1) The sheath introducer is removed after inflating the bag to a pressure **20 mmHg** above the systolic pressure of the patient.

2) The pressure is **reduced to systolic pressure after about 5 minutes**. Blood flow of the radial artery is re-started at this time.

3) The device **decompresses by 20 mmHg every 30 minutes**, and the bag is removed at 0 mmHg.
TR band (1)
TR band (2)
TR band (3)

1) **Insert** 17 cc of air into the bag using a syringe, the sheath introducer is removed.

2) The operator **extracts** 2 cc of air when the patient returns to bed, after 2 hours, 4 hours and 6 hours.

3) If bleeding has stopped, the TR band can be removed.
Adapty & Radispo (1)
Adapty & Radispo (2)

Sterilize and radial spasm check.
消毒とスパスマのチェック
1) After adjusting the plastic board so that it lies parallel to the wrist, take the pulse of the patient in order to check the blood flow of the radial artery.

2) Feel the radial pulse proximal and distal to the pressure site. If you cannot feel the pulse, adjust the belt until a pulse can be felt.
Adapty & Radispo (4)

Fastening the Belt

The following 3 criteria must be met:
1) The bleeding has stopped.
2) The radial pulse can be felt.
3) There is no pain caused by the device.
The standard pressure hemostasis time:

2 hours for 4 Fr, 3 hours for 5 Fr, and a 4 hours for 6 Fr.

After this time, loosen the belt completely.
Efficacy of a New Hemostatic Device, Adapty™, After Transradial Coronary Angiography and Intervention

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ABSTRACT: A novel hemostatic device, Adapty™ (Medikit, Tokyo, Japan), was developed to achieve effective and comfortable hemostasis following transradial procedures. The device consists of a pad fixed to a transparent plastic plate and a self-adhesive wrap. The catheter sheath is removed from the radial artery after the pad has been positioned precisely over the puncture site, with the wrap attached to the plate. Compression pressure is then adjusted with the self-adhesive strip, as required for arterial change. Patients do not need to maintain hyperextension of the wrist after the procedure. The wrap can be modified immediately after application. The efficacy of Adapty™ was evaluated in prospective observations of 200 patients. The device was correctly applied in all patients immediately after sheath removal. No patient required interruption of compression because of pain, congestion, or ischemia. Complete hemostasis was obtained in 198 patients (99.0%), and the device caused no vascular complications. This study demonstrates that Adapty™ is highly effective for achieving hemostasis after transradial procedures.

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Transradial coronary angiography (TRA) and intervention (THI) have proven feasible, effective, and safe in terms of reducing risk of major entry site complications, hospital staff workload, and cost. The patient greatly appreciates being able to leave hospital quickly after the procedure, avoiding the discomfort of prolonged bedrest. Because the arterial sheath is removed immediately after the procedure, anticoagulation is unnecessary. A small, self-adhesive strip is used to support mechanical compression at the site of the puncture. In the authors' experience, several techniques have been developed and used in the catheterization laboratory to achieve the same results. This study was performed in the authors' laboratory using a novel device, Adapty™ (Medikit, Tokyo, Japan).

Methods

The technique of TRA and THI was performed in 200 adult patients, 198 of whom completed the study (99.0%). All patients provided informed consent before the procedure. The ethical committee approved the study protocol. The study protocol was approved by the institutional ethics committee. Written informed consent was obtained from all patients.

Radial artery puncture. All radial arteries were selected using three angiocatheters (8 Fr, 6 Fr, and 5 Fr). The 8 Fr catheter was used for the first 50 patients, and the 6 Fr catheter was used for the subsequent patients. The puncture site was identified using the Allen test.

Figure 1. Components of the Adapty™ device, which consists of a pad fixed to a transparent plastic plate together with a self-adhesive wrap.

Methods

Fifteen, then September 1999 to January 2000, 150 patients undergoing TRA and THI were enrolled in the study. All patients provided written informed consent and were randomly assigned to two groups: group 1 (50 patients) and group 2 (100 patients).

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Conclusion

1) The principle of hemostasis after TRI is securing a blood flow from the start, or as soon as possible.

2) Although it is possible to shorten the hemostasis time using higher pressure, the rate of a radial artery occlusion becomes high.

3) So “loose and long” is important for hemostasis after TRI.
Another TRI Live Demonstration
History of TRI
History of TRI
Adapty and Radispo

Stepty-P (Nichiban Co.)
Adapty and Radispo

Stepty-P faults,

1. Adhesive tape around the wrist causes skin rashes or blisters.
2. The compression of the wrist can make the hand & palm swell.

Evidently, I thought a less invasive hemostatic device is necessary.
While I was playing the guitar, I suddenly realized the potential of a “CAPO shaped device”.
Adapty and Radispo

Adapty & Radispo
Sterilize and radial spasm check.
消毒とスパズムのチェック
Techniques to tighten the belt properly:
1) fasten tightly, but make sure that you can feel the pulse on both sides,
2) check that hemostasis is complete,
3) ask patient whether or not they are experiencing pain from the tightening of the device.

We usually loosen the belt after 4hrs.(6fr.) , 3hrs.(5fr.) and 2hrs.(4fr.)
Benefits of the Adapty and Radispo;

1) No adhesive tape around the wrist that can cause skin rashes or blisters.
2) Patients can freely move and eat on their own.
3) Transparent plate enables easy observation of bleeding or other complications.
4) No compression on the ulnar side allows free blood flow and less swelling of the hand. Moreover, free adjustment of the belt gives less pain to the wrist.