Transradial cardiac procedures

Introduction

In the mid 1990s cardiologists became very familiar with procedure-related access site problems. This was the era of stent deployment via 8F guiding catheters inserted from the femoral artery in association with intensive anticoagulation. Many patients had prolonged hospital stays, suffering major disability and occasionally life-threatening complications. Although these problems could be avoided by using a surgical approach to the brachial artery, this was technically demanding, and few operators were sufficiently skilled to achieve good results.[1]

In 1996 I was fortunate to be able to spend six months working at the OLVG hospital in Amsterdam, the unit that pioneered the use of the radial artery for coronary intervention. I was impressed by the difference in practice that this relatively simple change in procedural approach had achieved. By using the transradial approach, angioplasty procedures were completed with no detrimental effect on results or throughput. Patients walked back to the ward from the catheter laboratory and about half of them were discharged home four hours later. There were no important access site complications.

Intensive post-procedural anticoagulation has now been discarded, and many operators are confident that this has all but abolished femoral access site complications. The published literature tells a different story, though. Complications are rare following diagnostic procedures performed in the absence of aggressive antithrombotic therapy. However, even with weight-adjusted dosing regimes, small calibre guiding catheters and widespread use of compression aids, significant bleeding occurred in almost 10% of a recent series of transfemoral procedures performed in association with intravenous platelet blockade.[2] A variety of arterial closure devices have been developed. These reduce the need for a substantial period of immobility, but there is no evidence that they reduce the rate of major vascular complications and they cannot be used in many patients due to anatomical constraints or contraindications. In some patients, peripheral vascular disease prevents the use of the femoral artery. There is therefore a powerful argument for the use of the radial artery as the access site of choice for cardiac procedures because it has documented advantages in reducing access site complication rates and costs and because it improves patients' quality of life.[3]

Although the radial artery is used routinely as the access site in more than 390 centres worldwide, uptake of the technique has been relatively slow in the UK. The first diagnostic programme began at Papworth Hospital in 1994.[3] The first non-selective and substantial diagnostic and interventional programme was commenced at the North Staffordshire Hospital in 1998. The radial artery is employed as the access site of choice for all diagnostic and interventional procedures in my patients, and we have now performed more than 1,000 transradial procedures. With an experienced transradial operator to start the programme, we did not have to surmount a learning curve. In this series, containing a large proportion of rescue angioplasties, patients referred due to peripheral vascular disease and patients treated with intensive antiplatelet therapy, 98% of procedures were completed successfully and blood transfusions or surgical vascular repair have never been needed. These results are consistent with those from other large series, in which success rates were high and significant vascular complications very rare.[4,5]

Interest in the technique is growing, and substantial transradial programmes have now been established in several UK centres, including a day-case transradial programme in Blackpool. Even for committed femoral operators the radial artery is now often the access site of choice when an arm approach is needed, and the number of cardiologists who are adequately trained to perform Sones procedures is rapidly declining. We may now be close to the time when formal teaching in the transradial technique will need to be included in accredited training programmes.

This supplement reports the proceedings of an annual transradial symposium which provides a forum for UK cardiologists who have an interest in the technique, and provides an educational resource for interested (and sometimes sceptical) operators who are contemplating starting their own programme. All the contributors are actively engaged in transradial diagnostic and interventional procedures. Education and training in the technique are becoming increasingly important. Details of ongoing initiatives can be found at the end of the supplement. I am grateful for the training and support provided by my colleagues at the OLVG hospital, and for the involvement of the medical device and pharmaceutical companies who have provided the financial support to run the annual symposium and education programme.

References

1. Nolan J, Batin PD, Welsh CJ *et al*. Feasibility and applicability of coronary stent implantation using the direct brachial approach; results of a single centre study. *Am Heart J* 1997;**134**:939-44.
2. Choussat R, Black A, Bossi I, Fajadet J, Marco J. Vascular complications and clinical outcome after coronary angioplasty with platelet IIb/IIIa receptor blockade. *Eur Heart J* 2000;**21**:662-7.
3. Al-Allaf K, Eccleshall SC, Muthusamy TS, Nolan J. Selection of arterial access sites for cardiac procedures. *Br J Cardiol* 2000;**7**:422-5.
4. Black A, Cortina R, Acun A, Lucus G, Fajadet J, Marco J. Efficacy and safety of transradial coronary angioplasty: a report of 5354 consecutive cases. *Eur Heart J* 1999;**20**:268.
5. Saito S, Miyake S, Hosokawa G *et al*. Transradial coronary intervention in Japanese patients. *Catheter Cardiovasc Interv* 1999;**46**:37-41.

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