Establishing intravenous access in an emergency situation

Leonard Marc Quinn,[1] Adnan Sheikh[2]

[1]Department of General Surgery, Mersey Deanery, Liverpool, UK
[2]Department of General Surgery, Warrington District General Hospital, Warrington, UK

Correspondence to
Leonard Marc Quinn, Department of General Surgery, Mersey Deanery, Regatta Place, Brunswick Park, Liverpool L3 4BL, UK; marc.quinn@doctors.org.uk

Accepted 5 May 2013
Published Online First 15 June 2013

To cite: Quinn LM, Sheikh A. *Emerg Med J* 2014;**31**:593.

INTRODUCTION

Obtaining emergency intravenous access in a peripherally shut down patient can be challenging even for the most experienced clinician; however, it is paramount for the delivery of life saving drugs and fluids. Ultrasonography has been used for guided peripheral access but has shown no advantage being user-dependant.[1 2]

METHOD

The authors use a simple technique which involves applying a tourniquet above the elbow and establishing intravenous access in the dorsum of the hand with a blue (22G) venflon. The tourniquet is left on and immediately 100 ml of normal saline is infused by compressing the fluid bag. This allows for the larger proximal veins in the cubital fossa to engorge enabling a 14G/16G venflon to be passed for rapid fluid infusion.

Over a 9-month period from February 2012 to October 2012, we have employed this technique in all peripherally shut down patients referred to our care as the on-call general surgical registrar and senior house officer at Warrington and Halton Hospitals NHS Trust.

RESULTS

There were 22 adult patients presenting with an acute abdomen in our case series. All patients were referred from the emergency department resuscitation unit in hypovolaemic shock with peripheral shut down. Peripheral intravenous access had not been achieved in any of these patients through standard cannulation procedures. Using our technique, we were successful in obtaining intravenous access in 15 (68%) of these patients who were successfully resuscitated and definitively managed with a positive outcome. There were no documented complications secondary to this technique.

Of the seven patients in whom we could not obtain peripheral access, two patients unfortunately succumbed to their illness before appropriate access could be achieved. Of the remaining five patients, four required an ultrasound guided internal jugular venous line and one required a femoral line. All five of these patients were resuscitated successfully and without complications. The intraosseous technique was not employed in the management of any of these patients and is not in routine use at our hospital.

DISCUSSION

In the management of peripherally shut down patients, this simple measure can facilitate rapid intravenous access in both prehospital and hospital environments when peripheral access may not have been achieved otherwise. Furthermore, it could circumvent the need for a central venous line which is both time consuming and not without complications. As central access and monitoring would most likely be later needed in such critically ill patients, this technique may provide a bridge for intravenous therapy until central access is achieved under more stable clinical circumstances reducing the risk of line insertion complications.

Future studies should assess the efficacy of this technique on a larger scale within a broader medical and surgical spectrum of patients presenting in shock. In addition, this measure could be directly compared with ultrasound guided access techniques.

Contributors Both authors made equal contribution to the letter.

Competing interests None.

Provenance and peer review Not commissioned; internally peer reviewed.

REFERENCES

1 Stein J, George B, River G, *et al*. Ultrasonographically guided peripheral intravenous cannulation in emergency department patients with difficult intravenous access: a randomized trial. *Ann Emerg Med* 2009;54:33–40.
2 Mahler SA, Wang H, Lester C, *et al*. Ultrasound-guided peripheral intravenous access in the emergency department using a modified seldinger technique. *J Emerg Med* 2010;39:325–9.