

doi:10.1111/j.1460-9592.2006.02061.x

SIR—The use of transillumination for achieving vascular access is an old concept which was described back in the 1970s (1). Although it is a very useful technique, especially in the pediatric population, it has not gained significant popularity (2). This may be largely due to the unavailable and costly cold light source that is required.

Previously published literature reports the use of a cold light source with a fiberoptic cable (3). The disadvantage of this type of light source is the lack of availability in patient care areas of the hospital where vascular access is typically acquired. Fiberoptics are generally expensive, can be bulky to handle and quite difficult to carry on oneself. They may also require an AC power source, and therefore, have the potential for thermal or electrical injury to the patient (4). A light source >200 W may pose a similar risk.

The Vein Locator-Universal (VL-U; Sharn Anesthesia Inc., Tampa, FL, USA) is a new light source utilizing red light emitting diode (LED) bulbs for its illumination (Figure 1). This convenient gadget provides light intensity,

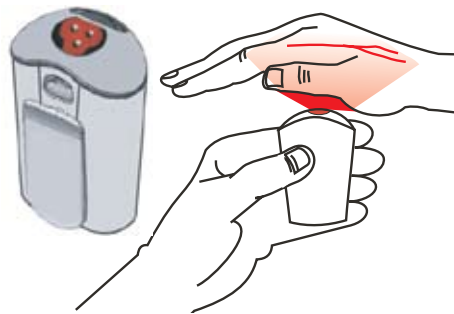


Figure 1
The Vein Locator-Universal transillumination device and method of use.

portability and cost effectiveness. The red LED is believed to transilluminate venous vasculature better than white light. During its development, it was found that white light passed through filters limiting the light to the 610–660 nm range of wavelengths was as effective as the full spectrum white light but resulted in much less heating of the tissues. Because LEDs produce light in narrow wavelength band, it was felt that LEDs with a wavelength of 625–635 nm would be effective. To be useful, the light had to meet the criteria of being transmissible through hand tissue, visible to the human eye, absorbed by hemoglobin, and of a wavelength available from ultra-bright LEDs. Those in the 620–660 nm range meet these criteria and were thus chosen for the device.

The VL-U is small and portable, measuring 7 cm · 4 cm · 3.5 cm ($2\frac{3}{4} \times 1\frac{1}{2} \times 1\frac{1}{4}$) in size and weighing approximately 67 g (2.4 oz.), and comes with a convenient belt clip. Veins can be easily identified using this disposable vein locator with a battery life running about 80 h under typical use. A single VL-U may be purchased for approximately US\$40. This cost can easily be justified if a few minutes of operating room time can be saved by decreasing the time for successful achievement of difficult venous access. In most instances, it reduces the number of venous access attempts which can be especially beneficial in pediatric or awake patients by decreasing the pain and trauma typically associated with repeated venous access attempts.

Justin M. John

Staff Anesthesiologist, Department of Anesthesia,
University of Toronto, The Hospital for Sick Children,
Toronto, Canada
(email: docjohn@hotmail.com)

References

- 1 Kuhns LR, Martin AJ, Gildersleve S et al. Intense transillumination for infant venipuncture. *Radiology* 1975; 116: 734–735.
- 2 Goren A, Laufer J, Yativ N et al. Transillumination of the palm for venipuncture in infants. *Pediatr Emerg Care* 2001; 17: 130–131.