## USE OF TRANSILLUMINATION TECHNIQUE FOR VENOUS CANNULATION IN PAEDIATRIC PATIENTS UNDER ANAESTHESIA

Dear Sir,

Intravenous cannulation for infants, toddlers and prepubescent children presents a challenge to physicians. The presence of smaller and fragile veins, a higher percentage of subcutaneous fat and visualisation difficulties in ambient light make the localisation of veins difficult. The chances of repeated attempts at cannulation are increased among older children, who are less cooperative due to fear of a needle prick.[1] Various methods have traditionally been used to increase the chances of venous cannulation, such as the use of a tourniquet, fist clenching, tapping or milking of the veins, the application of warmth, or the use of nitroglycerin.[2-4] The success rate of each of these procedures depends on operator experience and patient-related factors.

We have used the transillumination technique for venous cannulation in our patients under the induction of anaesthesia by inhalation and have found this technique to have a 100% success rate in dark-coloured and chubby babies. The use of cold light sources, such as a fibre optic light source or torches under the palm, helps in demarcating the veins as darkish lines against pink subcutaneous tissue (Fig. 1). The relative darkness of the room increases the efficacy. It also helps in assessing the depth and calibre of the vein as well as the visual check for the successful catheterisation of the vein. The availability of a cold light source in an operating room and the easy assessment of the depth and calibre of the vein are the main advantages of the technique. Although burns from the use of a cold light source are a potential hazard, a brief period of exposure is safe. The use of this transillumination technique[5] for the localisation of veins for cannulation is an old technique; however, it is still not well known in this part of the world. In conclusion, the transillumination technique is a useful adjunct for rapid venous access in all infants in whom the placement of intravenous cannulation is considered to be difficult.

**Fig. 1** Illumination by cold light source delineating the venous architecture of the hand.

Yours sincerely,

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## REFERENCES

1. Beauman S. Didactic components of a comprehensive pediatric competency program. J Infus Nurs 2001; 24:367-74.
2. Perucca R. Obtaining vascular access. In: Hankins J, Lonsway RAW, Hedrick C, Perdue M, eds. Infusion Therapy in Clinical Practice. 2nd ed. Philadelphia: WB Saunders. 2001:375-88.
3. Roberge RJ. Venodilatation techniques to enhance venepuncture and intravenous cannulation. J Emerg Med 2004; 27:69-73.
4. Lenhardt R, Seybold T, Kimberger O, Stoiser B, Sessler DI. Local warming and insertion of peripheral venous cannulas: single blinded prospective randomised controlled trial and single blinded randomised crossover trial. BMJ 2002; 325:409-10.
5. Samantaray A. Intravenous access: A different approach. J Indian Assoc Pediatr Surg [serial online] 2007; 12:163. Available at: www.jiaps.com/text.asp?2007/12/3/163/34963. Accessed Mar 10, 2008.