Use and effect of paediatric life support skills for paediatric arrest

EDITOR,—The article on use and effect of paediatric life support skills for paediatric arrest in the Accident and Emergency (A&E) department has three conclusions: (1) the poor outcome, well supported in the literature; (2) advanced life support training in the receiving hospital has not improved the outcome; and (3) the timing of initiation of life support is a critical factor affecting outcome.

A recent study of children presenting with anaphylaxis and a short time between arrest and arrival at the hospital, a cardiac output at presentation, and a short duration of resuscitation in the A&E department (two or fewer doses of adrenaline or resuscitated within 20 minutes).

Training of pre-hospital personnel in life support thus would seem indicated, but this must highlight the importance of not unduly delaying transfer by the time out of hospital interventions.

Owing to the poor outcome of paediatric cardiopulmonary arrests, courses such as the Advanced Paediatric Life Support (APLS) and the Paediatric Advanced Life Support (PALS) have been developed, focusing on structured intervention in critically ill children with emphasis on early recognition and aggressive management to prevent cardiac arrest. The teaching, however, is aimed at hospital personnel so the Advanced Life Support Group (ALSG) have now also developed the Pre-hospital Paediatric Life Support (PHPLS) course, specifically designed to allow the continuity of care from the pre-hospital arena to the A&E department. It uses most of the core material of APLS but incorporates specific pre-hospital problems with emphasis on prompt transportation to hospital.

The standard is comparable to APLS and it is suitable for any doctors, paramedics, and nurses working with critically ill children outside hospital. Further information can be obtained from Sue Wieteska, National Co-ordinator, ALSG, Second Floor, The Dock Office, Salford Quays, Manchester M5 2XB.

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Accidental digital injection of adrenaline from an autoinjector device

EDITOR,—We managed a 39 year old day care assistant recently with accidental digital injection of adrenaline from an autoinjector device. He had opened the device mistaking it for a pen. He came to us with the device still impaled in his right index finger.

From our experience with this case, we find that it is better to use saline or a clear antiseptic solution to prepare the skin than use Beta-
dine. The latter stains the skin and interferes with the observation of regression of skin pallor seen within a few minutes after phentolamine injection. 1

We gave a digital block with 1% lignocaine to extract the needle of the device from the parotid phalangeal crease. We then infiltrated his finger pulp space (at the site of implantation) with phentolamine 1.5 mg (in increments of 0.5 mg) diluted in 1% lignocaine. 2 The anaesthetic effect of the digital block was present after the vasculature was restored and interfered with the study of return of sensation. 3 In retrospect we wonder whether local infiltration of phentolamine with lignocaine by itself could have provided sufficient analgesia to remove the impaired needle and treat the injury as well. 3

It is interesting to note that many victims of this accidental injury have been paramedical personnel, law enforcers, and carers who have failed to recognise this device. 1 This device is marketed as a 'medical auto-injector' (adult and junior versions). The label on the device and the accompanying literature describes how it has to be used and it is usually dispensed with a dummy trainer. However the device looks like and can easily be mistaken for a marker pen.

Accidental digital injection is an avoidable injury with grievous consequence, which could possibly be prevented by appropriate modification of the external appearance/name of the autoinjector device so as to cause the unwary.

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5 O’Rourke P. Outcome of children who are apnoeic and pulseless in the emergency room. Crit Care Med 1986;14:466-8.

The author replies

I very much welcome this letter by Lee and Thomas and the finding that colleagues are indeed experiencing an increasing number of patients presenting with accidental digital injection of adrenaline from autoinjector devices. I read with interest that they have been able to successfully reverse adrenaline induced digital ischaemia with a glyceryl trinitrate patch and swab soaked with spray. Glyceryl trinitrate is believed to exert its vasodilator effect through nitric oxide stimulating an increase in cyclic guanosine monophosphate, which in turn induces smooth muscle relaxation by lowering the free calcium concentration in the cell. The reaction of the ischaemic vascular muscle venous dilatation predominates over dilatation of the arteries. 4 Given that adrenaline causes vasoconstriction via a receptor on arterioles, a non-selective a blocker would appear more pharmacologically sound treatment option. This does not exclude glyceryl trinitrate causing vasodilation via another pathway. It is recognised that the therapeutic effect of glyceryl trinitrate topically occurs between 30-60 minutes and this would fit with their finding of vasodilation taking place within one hour. 5 I feel however that in these cases they describe it is probable that accidental adrenaline injection took place from the digital bundle and therefore the adrenaline had a weaker constrictive effect, which was successfully reversed by the glyceryl trinitrate.

This problem is likely to present more frequently to accident and emergency departments and there is a need for a treatment protocol, which was one of the conclusions of my paper. 6 Unfortunately as with many aspects of emergency medicine it does not lend itself easily to a randomised control trial being performed. From what Lee and Thomas report it may be worth trying glyceryl trinitrate if the patient presents shortly after accidental injection (in under 8 hours), the injection is intraarterial or phentolamine is not immediately available, however if there was no therapeutic effect within 60 minutes of application of glyceryl trinitrate phentolamine must be used without delay.


Nutmeg intoxication

Eason,—In these days of increasingly sophisticated designer drugs, policed with "zero tolerance", we wish to report a case of recreational drug ingestion involving a substance freely available in every supermarket—the spice nutmeg.
Accidental digital injection of adrenaline from an autoinjector device.

G Lee and P C Thomas

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