Treatment of hypertensive emergency with nifedipine. *Japanese Journal of Pediatrics* (in Japanese) (in press).

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Sublingual nifedipine in acute severe hypertension

Sir,

We read with interest the recent article by Evans and associates in which sublingual nifedipine was shown to be safe and effective for the treatment of acute severe hypertension in children[1]; this is consistent with previous studies. However, van Harten *et al*[2] and McAllister[3] reported negligible sublingual absorption of nifedipine in adults, suggesting that significant nifedipine plasma concentrations are not achieved until the contents of the capsule reach the stomach and are then absorbed. They observed a higher peak nifedipine plasma concentration and a shorter time to reach peak concentrations when a patient bites the capsule to liberate its liquid contents, and then swallows, compared with when they squeeze the contents under the tongue.

Siegler and Brewer reported a mean of 57 minutes (range 15 to 90 minutes) for the time to achieve maximum decrease in blood pressure when nifedipine was administered orally to children while sublingual administration resulted in a mean time to maximum effect of 24 minutes (range 10 to 45 minutes).[4] In this study, nifedipine was administered by the oral route in young patients for whom reliable sublingual administration could not be assured. Thus a possible explanation for the longer time to maximum effect observed in this study with the oral route may be due to pharmacokinetic differences between infants and children. It would be interesting to know the change in blood pressure observed at 15 minutes in the study by Evans and colleagues. This information could then be compared with the onset of action in adults who swallowed the contents of the capsules after biting them and to the onset in infants and children who swallowed the contents of the capsules.

In addition some patients do not tolerate the strong mint taste of the liquid contents of a nifedipine capsule; this can result in nausea and vomiting of the medication. Therefore, in these patients oral administration may be an appropriate alternative as time to peak nifedipine plasma concentrations after oral administration of the capsule in adults appears to occur within 30 minutes.[3]

The data presented by Evans and associates further supports the effectiveness of nifedipine for the purpose of rapidly lowering blood pressure; however, the sublingual route may not be the optimal route of administration in children who can swallow a capsule.

References

1 Evans JHC, Shaw NJ, Brocklebank JT. Sublingual nifedipine in acute severe hypertension. *Arch Dis Child* 1988;**63**:975-7.
2 van Harten J, Burggraaf K, Danhof M, *et al.* Negligible sublingual absorption of nifedipine. *Lancet* 1987;**ii**:1363-5.
3 McAllister RG. Kinetics and dynamics of nifedipine after oral and sublingual doses. *Am J Med* 1986;**81**(suppl 6A):2-5.
4 Siegler R, Brewer E. Effect of sublingual or oral nifedipine in the treatment of hypertension. *J Pediatr* 1988;**112**:811-3.

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Drs Evans, Shaw, and Brocklebank comment:

In our study in those subjects where we recorded values for fall in blood pressure at 15, 30, and 60 minutes after the administration of sublingual nifedipine the maximum fall in blood pressure was seen at 30 minutes.

The mean fall in mean arterial pressure at 15 minutes was 22 mm Hg and at 30 minutes was 32 mm Hg (this excludes values on two non-responders). These results are consistent with the rapid onset of action reported by Siegler and Brewer. However, we fear they do not further our knowledge as to the route of absorption. It may well be that the oral route is preferable (particularly in infants) not because of better absorption but because it produces a slower fall in blood pressure.

Heparin and suspected Sanfillipo syndrome

Sir,

Initial screening of urine from a child with undiagnosed severe learning difficulties suggested a diagnosis of Sanfillipo syndrome. One dimensional electrophoretic separation of mucopolysaccharides[1] from this child's urine showed a large band migrating in the heparan sulphate region (figure). The child had no other features of Sanfillipo syndrome and further urine samples from the same child were normal. Examination of other children, however, from the same school resulted in the fortuitous identification of Sanfillipo A in a previously undiagnosed child.

It seemed unlikely that the original specimen had been collected from the wrong child. It was suggested that the urine sample could have been inadvertently collected into a cytogenetics sample tube. Blood samples for cytogenetic analysis are collected into heparinised 25 ml universal tubes that are otherwise identical to the tubes used by chemical pathology laboratories for urine samples. Repeated analysis of normal urine samples collected into cytogenetics tubes confirmed that the abnormal band originally identified as heparan sulphate was, in fact, heparin.