LETTERS TO THE EDITOR

Randomised trial of early tapping in neonatal post haemorrhagic ventricular dilatation: results at 30 months

EDITOR,—In reporting the results of follow up from questionnaires to the clinicians involved in the care of children randomised after the official end of this multicentre trial, Johnson et al have highlighted the important issue that major functional loss can be identified at the age of 30 months by questionnaire, particularly when there is an unbiased comparison group. The point and question in the letter was whether early tapping carried an advantage over conservative treatment in the prevention of major functional loss detectable at the age of 2 years. What might be missed, however, are impairments which, at that age, are not perceived as major deviations from the norm. Abnormalities and asymmetries of tone may escape notice in a routine examination and become obvious only at a later stage. It is therefore not surprising that there are large differences between the proportions of children reported as being 'normal' and those having neuromotor impairment without functional loss, in children randomised before 31 January 1987 compared with those randomised after this date.

There may also be difficulties in categorising children as multiply or singly impaired without more formal testing. Silence or poor expression of this age is a language attributed to shyness – particularly in the unfamiliar context of a short clinic visit.

However, for secondary questions concerning the relation between certain factors and late functional outcome, the method for assessing groups of children will depend on the questions being addressed. In order to assess disability at particular ages, simple questionnaires may not only be sufficiently robust, but may be the only feasible in context of follow up for large groups of geographically scattered children. The resulting increase in statistical power may more than offset the gains in accuracy which are made by using a more 'sensitive'1 test. It is these sorts of issues that we are exploring in our research assessing the advantages and disadvantages of questionnaires completed by paediatricians in clinics, health visitors, GPs and parents (and teachers for school age children).

Pro- or antioxidant activity of vitamin C in preterm infants

EDITOR,—It is with great interest that we read the paper by Silvers et al1 describing plasma ascorbic acid concentrations and plasma antioxidant activity in premature infants at birth, and potential implications for reactive oxygen species induced injury. The antioxidant activity of plasma was tested by measuring plasma thiobarbituric acid (TBA) reactive lipid peroxidation in rat brain homogenate, expressed as $D_{\text{max}}$ (plasma volume in $\mu$l required for maximum inhibition of auto-oxidation). In this vitro system, as mentioned by the authors,1 $D_{\text{max}}$ peroxidation is dependent2 on lipid peroxidation. It is therefore not surprising that plasma with low concentrations of caeruloplasmin (which has ferroxidase activity) and high concentrations of ascorbic acid (which can reduce free iron and initiate the formation of hydroxyl radicals through Fenton chemistry) has a low $D_{\text{max}}$.1

Although ascorbic acid can act as a pro-oxidant in the presence of free transition metal ions, it is a powerful antioxidant under other oxidative stress conditions.3 Ascorbic acid scavenges directly a variety of reactive oxygen species, including superoxide and hydroxyl radicals, suppresses the inactivation of antiproteases by oxygen generated by the myeloperoxidase-halide system, neutralises oxidants released from stimulated neutrophils in a dose dependent manner, and can generate membrane bound vitamin E.4,5 Ascorbic acid also has important metabolic roles — for example, in the biosynthesis of collagen, carnitine, and catecholamines.

The question, therefore, is whether in vitro observations such as the ones made by Silvers and colleagues1 are relevant to the in vivo situation. The detection of non-transferrin bound iron in plasma of preterm and term infants4 seems to support the authors’ concerns regarding a potential pro-oxidant effect of ascorbic acid in vivo.1 However, the various antioxidant and metabolic properties of ascorbic acid also have to be considered, and the integrated effect of high plasma ascorbic acid concentrations on the health status of premature infants is unknown.

Therefore, we caution readers not to conclude that ascorbic acid is harmful to premature infants and that ascorbic acid intake needs to be restricted in these infants. Only carefully designed and designed and prospective studies of vitamin C depletion or supplementation will be able to answer these important questions.

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