Letters to the Editor

Injectable Vitamin K and Increased Risk of Childhood Cancer

It will be very relevant to mention, a newsitem appearing in the 16th May, 1992 issue of the British Medical Journal(1), in relation to the recently published study regarding comparative efficacies of oral and injectable vitamin K in neonates(2). It concerns a just concluded study by Professor Jean Golding of the Institute of Child Health, Bristol, U.K. According to Professor Golding the findings of the study, which is yet to be published, show a link between the intramuscular vitamin K and an increased risk of childhood cancer.

The study does not, however, show the association between cancer and the orally administered vitamin. She said that this study was the second one to pinpoint a link between the vitamin K and an increased risk of cancer in childhood. The first study, published in 1990(3), examined the data from the 1970 British National Birth Survey and found that children who developed cancer were much more likely to have had vitamin K shortly after birth. In her present study, she examined the records of 111 children with cancer and 565 controls to see if such a correlation is repeated. The findings reveal that children who had cancer were more likely to have received intramuscular vitamin K than oral vitamin K or none.

She further says that the risk of any child developing leukemia by the age of 10 years is about 1 to 1000 and that of all childhood cancers about 1 in 500 and that, if her work is confirmed the intramuscular vitamin K could increase this risk to about 1 to 200. She estimates that in Britain, the risk of hemorrhagic disease of the newborn, if no vitamin K is given, is about 1 in 10,000.

It is to be established whether vitamin K is a cause or an effect. A study is needed to find out whether vitamin K is itself a mutogen or carcinogen. It is also to be seen whether the mode of delivery (IM versus oral) is important perhaps by exposing neonate to infective agents such as viruses that may trigger cancer.

Keeping with these new findings, the British Pediatric Association (BPA) along with the Department of Health, U.K. is setting up an expert working group to review the safety of vitamin K injections for newborn babies. An investigation is underway in U.K. to find out if giving extra doses of oral vitamin K can improve protection against the disease.

In this context and that of study of Malik *et al.*(2), we would like to emphasize the need to study further the efficacy of oral vitamin K in useful or extradoses, in Indian babies considering the reporting of avoidable grave risk with intramuscular vitamin K in order to substitute intramuscular vitamin K with the oral one to which the baby is perhaps exposed to.

We suggest that the Indian Academy of Pediatrics (IAP) should also take initiative to undertake the study similar to that of Professor Golding, at different centres to see the correlation intramuscular vitamin K to subsequent development of childhood cancers. The pediatric hemato-oncologists in particular, should take these findings in all seriousness towards correlating the possibilities of childhood cancers to

the intramuscular vitamin K administered to such children at birth.

Considering the very high birth rate in India and that all the babies born in big hospitals receiving intramuscular vitamin K routinely, the number of childhood cancer cases added due to vitamin K could be substantial and alarming. The study of Mali *et al.*(1) has appropriately come at a time when intramuscular vitamin K is being increasingly associated and implicated with subsequent development of childhood cancers.

The IAP and National Neonatology Forum should take lead in urgently undertaking studies on this aspect, the implications of which might rather be shocking.

It will be very unfortunate, if findings of Professor Golding are confirmed, that to prevent a disease we have been inadvertently inducing a more serious and usually fatal disease.

Even when studies and observations regarding BCG vaccinations and the subsequent development of cancers in humans have been published(4,5), sadly no such published study or observation is available or forthcoming from India where mass BCG vaccination has been in practice for nearly four decades.

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Reply

The author has raised very relevant and pertinent question on the possible linkage of the administration of Vitamin K and the increased risk of childhood cancers as quoted from Professor Golding's study.

We fully endorse the author's view on the need for a comprehensive study in the Indian context. This study should specifically focus on the (*a*) cause and effect factors and (*b*) on the mode of administration of Vitamin K to the increased incidence of childhood cancers.

We would also like to point out that Vitamin K, preparation normally used in Western Countries is an oral based preparation (Phytonadione or Mephyton)(1) and the preparation that we use is a synthetic water soluble Vitamin K analogue (Menadione Sodium disulphite)(2,3). The impact of this difference also needs to be evaluated.

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