Excess Iodine Nutrition in Delhi

I read the informative and useful article by Marwaha, *et al*.(1), in the April 2010 issue of *Indian Pediatrics.* In their research communication, authors have made an unwarranted and potentially damaging extrapolation of their data. Authors have concluded that "this study shows evidence of excess iodine nutrition in USES school children. The source of this iodine could be salt or non salt iodine. The increased urinary iodine is associated with thyroid dysfunction though not with goiter". Their conclusions are based on the findings of 997 USES school children studied which had median UIE level of 352 µg/L (97% of the urine samples had UIE level 300 and more µg/L). To have excretion of iodine of 300 µg/L, a child has to consume at least 20 g of salt per day, the possibility of all children consuming this high amount is very remote. The earlier multicentric study conducted in 1988 by Indian Council of Medical Research documented that in neighboring state of Haryana, the per capita per day consumption of salt was 10.2g in winter, 9.2 g in summer and 9.2 g in rainy seasons. Similarly in Uttar Pradesh state, per capita per day consumption of salt, was 12.4 g (winter), 12.9 g (summer) and 14.9 g (rainy) seasons(2). Also, the NFHS-III survey data of Delhi, conducted in 2005-2006 in which iodine content of salt was estimated, also documented that nearly 14% of the household in the highest income group were consuming salt with less than 15 ppm of iodine. These facts substantiate that the iodine intake of children could not come from iodized salt. In an earlier study, conducted in school age children in Delhi in 1999(3), we found that median UIE was 170 mcg /L and 42% of the households were consuming salt with less than 15 ppm of iodine. Another study conducted in Delhi in 2010, has reported that the median urinary iodine excretion was found to be 198.4 µg/L and 11.7% of household were consuming iodized salt less than 15 ppm(4).

Salt manufacturers in general try to save money by adding less iodine in the salt as the cost of iodine is about 10% of the total cost of the salt at the production level. There are no foods which are rich in iodine and most common source of dietary iodine intake in India is iodized salt. The investigators have used a new methodology for estimation of UIE which could be possibly responsible for reported higher value of UIE levels. The findings of the study indicate the excessive intake of iodine by the children, which is a cause of great concern as it might lead increase in thyroid disorders and can have adverse impact on the universal salt iodization program in the country. Hence, the results of present study should be urgently communicated to managers of National Iodine Deficiency Disorders Control Program in the Ministry of Health and Family Welfare, New Delhi, so that corrective measures can be initiated.

Umesh Kapil
Department of Human Nutrition, AIIMS, New Delhi, India,
umeshkapil@gmail.com

REFERENCES

1. Marwaha RK, Tandon N, Desai A, Kanwar R, Maini K. Iodine nutrition in upper socioeconomic school children of Delhi. India Pediatr 2010; 47: 35-37.
2. Pattern of Salt Consumption in Different Regions of India- A Multi Centric study. Indian Council of Medical Research, New Delhi: ICMR Offset Printing Press; 1990.
3. Kapil U, Saxena N, Nayar D, Ramachandran S. Assessment of status of salt iodization in Delhi. Indian J Pediatr 1999; 66: 185-187.
4. Agarwal J, Pandav CS, Karmarkar MG, Nair S. Community monitoring of the National Iodine Deficiency Disorders Control Programme in the National Capital Region of Delhi. Public Health Nutr 2010; 1: 1-4.

REPLY

I appreciate the interest and concern shown by Dr Kapil regarding the high urinary iodine excretion in Delhi children from upper socioeconomic strata. We have earlier also shown high UIE using the same method from Delhi and other cities(1). Similar trend of high UIE has also been reported from Delhi in another study(2). While we have not looked at the patterns of food consumption, salt consumption or estimation of salt iodine content, the sources of excess UIE remains speculative and this has been accepted by us in our paper.

The number of samples studied (1000 approx) for evaluating UIE in a sub group of USES children is by no means a small number. I agree with Dr Kapil that different methodologies can report different values of UIE, but we have used the same Wet Ashing method using perchloric acid vanadate as in earlier studies.

R K Marwaha,
marwaha_raman@hotmail.com

REFERENCES

1. Marwaha RK, Tandon N, Gupta N, Karak AK, Verma K, Kochupillai N. Residual goitre in the postiodization phase: iodine status, thiocyanate exposure and autoimmunity. Clin Endocrinol 2003; 59: 672-681.
2. Pandav CS, Mallik A, Anand K, Pandav S, Karmarkar MG. Prevalence of iodine deficiency disorders among school children of Delhi. Natl Med J India 1997; 10: 112-114.

Air Mixing with IV Fluids and Injection?

In our day to day practice we come across situations when air comes in contact with IM/IV injections/ vaccines being given to a patient/a vaccine recipient or IV fluids in which air enters into the saline bottles. Surprisingly we don't get any finding of subsequent infection in the recepient. Why is it so? As because we have to use sterile water for injection for preparing parental injections/ vaccines but not sterile air. I would like to know the reason behind sterility of air entering into IV/IM injections.

Shyam Sunder Sidana,
PEDICARE, Ranchi, India.
rch_sssidana@rediffmail.com

REPLY

Dr Sidana has raised an important issue. The air does carry bacteria, spores, etc. The particulate matter in air is also likely to be contaminated. The degree of contamination of air is variable depending on the quality of air handling system in use. It is well documented that use of non-vented systems for delivering iv fluids leads to a decrease in the bacteremias(1,2). The use of rigid/ semi-rigid bottles, which require an air-vent are more likely to be contaminated due to the vented air. The bacteria have been shown to proliferate in the intravenous fluid(3). The available data suggests that the air, that enters the IV fluid bottles through a vent (in-built in the IV set or a needle that is inserted into the bottle), is likely to increase the risk of bacteremia in children.

On the other hand, the volume of air that would come in contact with the medications in a vial/ ampule is likely to be small. So, the risk of contamination and that of infection due to contact of medication with air in recipients of IM/IV medications is likely to be small. However, it may be desirable to prepare all injections under a sterile hood/laminar flow, particularly when these have to used in at-risk patients such as preterm neonates, immunocompromised children, critically ill children in PICU.

Rakesh Lodha,
Assistant Professor,
Department of Pediatrics,
AIIMS, New Delhi 110 029, India.
rakesh_lodha@hotmail.com

REFERENCES

1. Useh MF, Mbouda B. Risk of contamination from air vents during intravenous fluid administration. East Afr Med J 1998; 75: 322-326.
2. Rosenthal VD, Maki DG. Prospective study of the impact of open and closed infusion systems on rates of central venous catheter-associated bacteremia. Am J Infect Control 2004; 32:135-141.
3. Lamikanra A, Sofekun MO. Ability of bacteria isolated from the hospital environment to proliferate in infusion fluids. Microbios 1988; 55: 115-125.