



Fig. Photograph of Nutrition Disc of India.

calculate nutritive value of common foods with the help of Nutrition Disc of India.

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## Pyridoxine Supplementation with Isonex: Is it Necessary?

Isoniazid is the most widely used anti-tubercular drug. Peripheral neuritis as a result of competitive inhibition of pyridoxine metabolism(1) is one of the various

side-effects of this drug. Though this side-effect of isonex is completely reversible and reported to be extremely rare in pediatric practice (unless it is used in very high dose, the child is alcoholic or in adolescent phase)(1-5), still doctors in general have a wrong notion about its incidence and importance. We too have yet to come across such a case though practising in an area where both tuberculosis and malnutrition are quite rampant.

'Isoniazid-pyridoxine' combinations are marketed by many pharmaceutical companies (Concept, Albert-David, IPCA, etc.) using pyridoxine in different doses—needless to say on an arbitrary basis. Some companies (Concept, IPCA) give 5 mg pyridoxine with 100 mg isonex while

'Siozide liq.' marketed by Albert-David contain 0.875 mg pyridoxine with 280 mg isonex. Moreover, companies like 'Concept' adopt dual policy. Pyridoxine is included in their kid-tablet (Rifa-i-6) but not in the tablet meant for adult usage. We feel that such combinations are improper for the following reasons:

1. There are reports which indicate that simultaneous use of pyridoxine may in fact reduce the efficacy of isonex(6,7) possibly due to formation of a 'pyridoxal-isonicotinyl hydrazone'.
2. Isonex induced peripheral neuritis (in whose name pyridoxine is given with isonex) is extremely rare in pediatric practice(1-5) and thus beside various authors(5,8), Nelson's Textbook of Pediatrics(2) clearly states that pyridoxine must not be used simultaneously with isonex.
3. Isonex induced peripheral neuritis, if at all observed, is easily manageable and completely reversible(9).
4. A 1-3 year old child requires merely 0.6 mg pyridoxine per day(10,11), whereas the market preparations generally give 5 mg pyridoxine with 100 mg isonex. Moreover, apart from diet, the child is likely to get sizeable amount of pyridoxine from the various B-complexes/protein preparations (prescribed routinely by the doctors and in some cases given by over-enthusiastic parents). Thus if the present situation continues, the child is likely to get nearly 8-10 times of his daily requirement which is unwarranted by any standards.
5. Even in adults, where this complication is relatively frequently

observed, many authorities do not favour simultaneous administration of pyridoxine(9).

6. It unnecessarily increases the cost of formulation.

On the basis of these facts we strongly recommend ban on these combinations. However, we would like to know the comments and reactions of our fellow colleagues.

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#### REFERENCES

1. Rudolph AM. Pediatrics, 17th edn. Norwalk, Appleton-Century-Crofts 1982, p 576.
2. Speck WT. Tuberculosis. In: Nelson textbook of Pediatrics, 13th edn. Eds. Behrman RE, Vaughan VC, Nelson WE. Philadelphia, WB Saunders Co, 1987, p 636.
3. Hughes JG, Griffith JF. Synopsis of Pediatrics, 6th edn. St Louis, The CV Mosby Co, 1984, p 753.
4. Farmer TW. Pediatric Neurology, 3rd edn. Philadelphia, Harper and Row, 1983, p 683.
5. Shirkey HC. Pediatric Therapy, 5th edn. St Louis, The CV Mosby Co, 1975, p 457.
6. Barry VC. Chemotherapy of tuberculosis. London, Butterworths, 1964, p 255.
7. Eichenwald HF. Tuberculosis. In: Nelson Textbook of Pediatrics, 12th edn. Eds Nelson WE, Behrman RE, Vaughan VC.

- Philadelphia, WB Saunders Co, 1983, p 719.
8. Cooke RE. The Biologic Basis of Pediatric Practice. New York, McGraw Hill Book Co, 1968, p 769.
  9. Snider DE. Pyridoxine supplementation during Isoniazid therapy. *Tubercle* 1980, 61: 191-196.
  10. Martin EA, Coolidge AA. Nutrition in Action, 4th edn. New York, Holt, Rinehart and Winston 1978, pp i-ii.
  11. Gopalan C, Rama Sastri BV, Balasubramanian SC. Nutritive value of Indian Foods. Hyderabad, National Institute of Nutrition, 1987, pp 28-29.

## Comment

I do agree with the authors' observation that INH induced peripheral neuropathy is dose related and mostly seen in adolescents, alcoholics, anemic and malnourished patients. Biehl *et al.* reported that 44% of patients taking 16-24 mg/kg/day INH developed peripheral neuropathy(1), while only 2% developed in those taking 3.5 mg/kg/day. Oestreicher *et al.*(2) confirmed that even low doses of INH of 4-6 mg/kg/day can produce neuropathy among malnourished patients. Money reported that 20% of malnourished Ugandan tuberculosis patients taking only 4-6 mg/kg/day developed signs and symptoms of peripheral neuropathy(3).

The doubts raised by the authors that simultaneous use of pyridoxine may reduce the efficacy of INH is debatable. Eichenwald(4) mentioned that there is some suggestion that pyridoxine may decrease the efficiency of INH. However, it is men-

tioned that pyridoxine should be administered with isoniazid so as to minimize adverse reaction especially in malnourished patients and those predisposed to neuropathy, e.g., pregnancy, adolescence, diabetes, etc.(5).

The statement, made by the authors that pyridoxine may in fact reduce the efficacy of isonex possibly due to formation of pyridoxal-isonicotinyl hydrazone is probably not true. In fact INH induced peripheral neuropathy is due to vitamin B-6 deficiency of competitive inhibition of pyridoxal isonicotinyl hydrazone(6,7). Though this compound has been found to be highly unstable and probably has a lower anti-tubercular effect than INH has, this fact has not been proved in any human trial. In an animal experiment in mice it was found that very large doses of pyridoxine combined with INH had resulted in an antagonism of INH effect in the 2nd and 3rd month of the experiments(8).

In the absence of enough scientific evidence it will not appropriate to recommend ban on these combinations. A scientific study should be conducted using pyridoxine and INH combination in one group and only INH in another group of severe PEM to come to any conclusion. Everybody is otherwise using dose of B-complex syrup or tablets which also contains Vitamin B6. An excellent review article on this subject has been recently published(9).

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1. Biehl JP, Viltor QW. Effects of Isoniazid on pyridoxine metabolism. *JAMA* 1954, 156: 1549-1552.