Indian vaccine hastens cure for leprosy

By giving a locally made vaccine in addition to standard drugs recommended by the World Health Organization (WHO), medical researchers in India have been able to shorten the time it takes to treat leprosy. They claim that adoption of this strategy across the continent would help rid India of leprosy sooner and at lesser cost to the nation.

Half the world's 1.8 million lepers are in India, where 20,000 new cases occur annually. Patients currently receive a combination of dapsone, rifampicin and clofazimine but this multidrug therapy — which is the sheet anchor of WHO's control program worldwide — takes two to five years to show results.

Researchers at the National Institute of Immunology in New Delhi have reduced the length of treatment to less than two years by combining the drugs with an anti-leprosy vaccine that they developed 15 years ago. The vaccine is a suspension of killed *Mycobacterium*-W, a fast-growing Indian isolate that has cross-reacting antigens with *Mycobacterium leprae*, which causes leprosy in humans.

In a project sponsored by the government Department of Biotechnology, the *M.*-w vaccine has been injected into some 26,000 healthy contacts in the district of Kanpur Dehat (pop. 400,000) in Uttar Pradesh to see if it gives them protection against *M. leprae* infection. Results of this immunoprophylactic trial will not be known before 1998. Meanwhile NII scientists, encouraged by data from immunotherapeutic trials trials, are recommending that the vaccine be given to patients suffering from leprosy.

In their trials on 422 patients in Delhi hospitals, they showed that the vaccine given every three months in addition to standard multidrug therapy led to clearance of leprosy bacilli and clinical improvement so fast that 77 percent of patients could be released from treatment in two years. In contrast, progress was slower in patients on drug therapy alone and only 43 percent of them could be discharged in the same period. "More important," says Rama Mukherjee, coinvestigator of the project, "a majority of vaccinated patients showed conversion to lepromin positivity, indicating that their immune system will be able to mount a defense against *M. leprae* in the event of reinfection." The combined therapy also worked on "slow responders" who did not get much benefit from a long period of treatment with multidrug therapy.

Half the world's 1.8 million lepers are in India, where a local leprosy vaccine is speeding recovery.

Indira Nath, an immunologist at the All India Institute of Medical Sciences in New Delhi, says that faster clearance of the bacilli is perhaps due to the vaccine "tickling the immune system in a non-specific way triggering the production of cytokines."

Encouraged by the hospital studies, National Institute of Immunology doctors, with permission from India's Drug Controller, has vaccinated 1100 leprosy patients in the same area where it is conducting the prophylactic trial and is preparing to vaccinate another 3800 people. A spokesman for the health ministry said that the results of these trials, which will be known next year, will determine whether or not the vaccine will be used by the government for treatment of leprosy. Meanwhile the institute has transferred the vaccine production technology to a private drug company.

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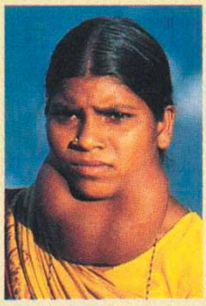
Iodized salt campaign succeeds in India

By adding iodine to edible salt and making its use compulsory since 1986 the Indian government has saved several thousands of babies from being born with brain damage, says Prof. N. Kochupillai of the All India Institute of Medical Sciences in New Delhi.

The universal salt iodization program (USIP), aimed at protecting an estimated 150 million people exposed to severe environmental iodine deficiency, is already billed as India's success story of the century. "In another three years there will not be a single case of brain damage that can be attributed to iodine deficiency," says Kochupillai whose expose of rampant mental retardation in three districts of Uttar Pradesh in 1984 prompted the government of late Rajiv Gandhi to launch USIP.

"Thyroid gland makes thyroxine from iodine and this hormone is essential for brain development of the fetus," says Kochupillai. He screened some 20,000 newborns for the hormone — in dried blood spots on filter paper mailed by health workers — and found that 98 out of every 1000 births were hypothyroid and hence mentally retarded. This figure has now dropped to 14 per 1000.

An iodization scheme had been launched 30 years ago, but it failed because at that time the havoc iodine deficiency caused on newborns was not known, and goiter that resulted from low iodine intake was treated as nothing worse than a cosmetic problem. Kochupillai says that allowing private companies to make the iodized salt and the efficiency of the railways in transporting the annual requirement of 2.3 million tons of salt to nooks and corners of the country were two factors responsible for the success of USIP. In fact salt movement has been given the highest priority by the Indian Railways next only to troop movement.



Future generations in India will not suffer from goiter or thyroxine-related mental retardation.

The USIP cannot help the 40 million or so people who are already goitrous. "But the future generation will not suffer from goiter or mental retardation," according to Kochupillai, who says that USIP is the only public health programme in India on which the government is not spending any money. The entire operation is in private hands.

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