

## Scientists develop new method to monitor lymphatic filariasis

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New Delhi, May 3 (India Science Wire): A new method developed by Indian scientists to monitor prevalence of lymphatic filariasis can help in accelerating plan to eliminate the disease in the country.

At present, scientists collect data about number of infected patients before and after every elimination drive to assess how successful it was. This is achieved by testing for filarial worm infection in blood samples. This is expensive, labor-intensive, and invasive, requiring skilled clinicians to draw blood under hospital settings.

Scientists have now come up with a new method of finding filarial parasite in mosquitoes that can help them know about the prevalence of the disease at lower cost, lesser time, and with higher efficiency. It involves looking for infected mosquitoes rather than infected humans. Called Molecular Xenomonitoring, the technique was previously tried out successfully in Sri Lanka in 2006. It has now shown promise in India also.



“Molecular Xenomonitoring is detection of DNA or RNA of the parasite in mosquitoes and can serve as an alternative method for estimating the infection prevalence in human populations”, say scientists.

The study was done jointly by Indian Council of Medical Research’s Vector Control Research Centre at Puducherry, Tamil Nadu Government’s Department of Public Health, along with America researchers from the Task Force for Global Health located, SJL Global Consulting and the Department of Biological Sciences in Smith College. The research results have been published in a recent issue of the journal *PLOS Neglected Tropical Diseases*.

Mosquitoes were collected from two areas- Thanjavur and Ammapettai districts in Tamil Nadu. The two areas are known hotspots for filariasis. Mosquitoes were caught with the help of gravid traps kept outside 207 houses in the evening. Next morning, the mosquitoes were brought to the laboratory, where they were tested for the presence of the filarial parasite. The exercise was first done in 2000 and then followed up in 2012, to determine how successful the elimination

drives that had been conducted in the areas over the years had been. The number of infected mosquitoes were found to be reduced from 2.7% to 1.2%, which matched the reduction in infected patients from 49.5% to 23.4%.

“Molecular xenomonitoring supported the observed filariasis infection trends found in humans. It is a low cost, non-invasive monitoring and evaluation tool with sensitive detection of infection signals in low prevalence settings. Owing to poor hygienic conditions in India, high rate of mosquito breeding causes disease resurgence. This technique can be used to monitor mosquitoes in an area post-success also”, says Dr. Jambulingam Purushothaman, Director of the Vector Control Research Centre, Pondicherry.

He believes that the technique will expand to other areas and may help eliminate diseases like kalaazar in future. Presently, the technique is being used in three other districts in Tamil Nadu, Puducherry and Orissa.

Lymphatic filariasis affects 947 million people globally, of which one third of the disease burden is in India. India has committed itself to eliminate the disease by 2020. To achieve this goal, many districts have undergone 10-12 rounds of mass drug administration. Of them, 72 districts have achieved success, and 147 more are in different stages of reaching the goal.

Commonly called Elephantiasis, the disease causes thickening and swelling of limbs, genitals, and breasts. It is accompanied by sub-optimal mental health and social stigma. After the filarial roundworm enters a patient’s body, it remains inside for up to eight years, blocking blood vessels and bringing down immunity. The worms produce numerous larvae inside the body that are spread to other humans by mosquitoes.

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