Lifewire: Research - parasitic diseases are common in U.S. poor

by Ven_Griva

Contrary to popular belief, life for the poor in the United States offers little protection from the kinds of parasitic infections found in the Third World, says a study published in December in the Public Library of Science Neglected Tropical Diseases, a free, online, peer-reviewed medical journal.

Peter Hotez of the George Washington University and the Sabin Vaccine Institute says that there is evidence that the parasitic diseases are very common in the United States, especially among poor and underrepresented minority populations living in inner cities and poor rural areas.

Such infections are called neglected tropical diseases because they afflict mostly poor people and are often ignored by public health officials and political leaders despite their enormous medical importance. Among the diseases, Hotez reports these as prevalent:

- Toxocariasis, which is caused by the roundworm Toxocara canis. It is a common parasitic infection among inner city black and Hispanic children. Possibly as many as 23 percent of Americans living in poverty are exposed to this parasitic worm, in whom it causes a lung disease that resembles asthma, as well as liver and brain disease.

- Cysticercosis, which is caused by the tapeworm Taenia solium. It is emerging as the leading cause of epilepsy among Hispanic populations in the United States.

- Toxoplasmosis, which is caused by the bacterium Toxoplasma gondii. It is an important cause of congenital birth defects among Latinos and blacks.

- Strongyloidiasis, which is caused by the Strongyloides stercoralis. It is a common cause of gastrointestinal symptoms. However, in people with compromised immune systems or the young or very old, the infection can be devastating and carries a 60 percent to 85 percent mortality rate.

- Leishmaniasis, which is caused by Trypanosome protozoa. It is an important cause of skin lesions and facial deformities currently affecting 12 million people in 88 countries.

- Leptospirosis which is caused by a genus of the Leptospira bacterium. It is often referred to as swineherd's disease. The infection causes a systemic illness that often leads to kidney dysfunction.

"Because these parasitic infections only occur among impoverished people and mostly underrepresented minorities in the U.S.," Hotez said, "I believe that there has been a lack of political will to study the problem. It is easier to allow these diseases of poverty to simply remain neglected.

"There is an urgent need to support studies that assess the disease burden resulting from these diseases in the United States, identify the minority populations at greatest risk, and identify simple and cost-effective public health solutions," Hotez said.

FISH OIL

Scientists have long touted fish oil as an inexpensive weapon in the fight against late-onset Alzheimer's disease. Recently, researchers at the University of California Los Angeles confirmed that fish oil is indeed a deterrent against Alzheimer's, and they have identified the reasons why, says a report in the Dec. 26 issue of the Journal of Neuroscience.

Fish oil and its key ingredient, omega-3 fatty acids (found in fatty fish like salmon), have been a mainstay of alternative health practitioners for years and have been endorsed by the American Heart Association to reduce the risk of cardiovascular disease.

Greg Cole of the David Geffen School of Medicine and UCLA's Alzheimer Disease Research Center and colleagues report that the omega-3 fatty acid docosahexaenoic, or DHA, which is found in fish oil, increases the production of a protein that is lacking in Alzheimer's patients. DHA is known to destroy the protein that forms the "plaques" associated with the disease, the study says

The plaques are deposits of a protein called beta amyloid that is thought to be toxic to neurons in the brain, leading to Alzheimer's.

Alzheimer's is a debilitating neurodegenerative disease that causes memory loss, dementia, personality change and ultimately death. The national Alzheimer's Association estimates that 5.1 million Americans are currently afflicted with the disease and predicts that the number may increase to between 11 million and 16 million people by the year 2050.

The UCLA researchers examined the effects of fish oil, or its component DHA, in multiple biological systems and administered the oil or fatty acid by diet and by adding it directly to neurons grown in the laboratory.

"We found that even low doses of DHA increased the levels of LR11 in rat neurons, while dietary DHA increased LR11 in brains of rats or older mice that had been genetically altered to develop Alzheimer's disease," said Cole, who is also associate director of the Geriatric Research Center at the Veterans Affairs Medical Center.

To show that the benefits of DHA were not limited to animal cells, the UCLA scientists also confirmed a direct impact of DHA on human neuronal cells in culture as well. Thus, high levels of DHA leading to abundant LR11 seem to protect against Alzheimer's, Cole said, while low LR11 levels lead to formation of the plaques.

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