

Urgent Steps Needed: Bolstering Measures to Combat Naegleria Fowleri Infection in Pakistan

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Naegleria fowleri, also known as “brain-eating amoeba”, is a free-living thermophilic and ubiquitous amoeba that can survive in soil, water, or the host, which can be the human central nervous system. Once *N. fowleri* enters the body, it travels to the brain causing Primary Amoebic Meningoencephalitis (PAM), which is a rare disease, but extremely fatal, having a mortality rate of 98%.¹ The recent emergence of cases of PAM in Karachi, involving 3 deaths over a span of one week demands immediate attention on prevention of further infections. The three deaths reported were of a 32-year-old woman who died on May 24, 2023, followed by the death of a 45-year-old man on May 26, 2023, and a 19-year-old boy on May 28, 2023.²

N. fowleri thrives at 27-37°C, so these infections dominate in the summer months.¹ Their natural habitats include hot springs, ponds, rivers, and freshwater lakes, but they have also been identified in untreated swimming pools, drinking water distribution systems, and hospitals. The main mode of transmission is found to be through water entering the nose while performing activities in untreated water bodies, especially swimming pools. Therefore, the primary preventive measure to be incorporated is the chlorination of pools, water parks, and domestic water supplies as *N. fowleri* is highly susceptible to chlorine. Also, recreational activities in lakes, rivers, or ponds should be avoided, or alternatively, nose plugs may be used to prevent water from entering the nose.³

Of all the previously reported cases in Pakistan, only two individuals had a history of recreational water activity, inferring that most cases have been due to the presence of *N. fowleri* in the domestic water supply and infection largely results from ablution.⁴ This demands an urgent need for additional investigations of domestic water supply,

including drinking water supply, and implementation of precautionary regulatory actions in the prevention of PAM infection.⁵

To relay the preventive measures to the general public, it is essential to carry out awareness campaigns in educational institutions, religious gatherings, local government buildings, and hospitals, and also through news broadcasters and social media. In this way, every individual can be made aware of the severity of this infection and they can take adequate precautionary measures to protect themselves from PAM. Moreover, the government and higher authorities should ensure that domestic water supplies as well as water present in swimming pools and other aquatic facilities is regularly screened, chlorinated and temperature regulated to prevent *N. fowleri* colonization. In addition to this, medical professionals and healthcare providers should be equipped with updated training and guidance on how to diagnose and manage Naegleria infections.

Keeping in view the high mortality rates and unavailability of treatment for PAM, prompt implementation of preventive measures is the only way to combat the deadly disease.

Conflict of interest: None declared.

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