EDITORIAL

NAEGLERIA: BRAIN-EATING AMOEBA

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Naegleria is a genus of protozoa. The genus was named after French zoologist Mathieu Naegler. Naegleria is a microscopic amoeba that can cause a very rare, but severe, infection of the brain. A brief historical sketch is given since the discovery of this amoeboflagellate in 1899 and the finding in 1970 that one species, Naegleria fowleri causes primary amoebic meningoencephalitis (PAM) in man. Eight different types of this pathogen are known which have an uneven distribution over the world. Until now 47 different Naegleria spp. are described. The amoeba called Naegleria fowleri travels up the nose to the brain, where it causes severe damage. Most people who have naegleria infection die within a week.[1]

In very rare instances, Naegleria infections may also occur when contaminated water from other sources (such as inadequately chlorinated swimming pool water or heated tap water < 47 °C) enters the nose. Once the amoeba enters the brain, it causes a usually fatal infection called PAM. The amoeba lives as a cyst on the sediments of the bottom of freshwater like lakes, ponds, and rivers. Species include: Naegleria fowleri, Naegleria gruberi, Naegleria lovaniensis.[2]

PAM is an acute, fulminant, necrotizing, hemorrhagic meningoencephalitis, characterised by severe headache, stiff neck, fever (38.5°C - 41°C), altered mental state, seizures and coma, and is almost always fatal within an average of 3 - 7 days. Other symptoms such as photophobia, mental status abnormalities, lethargy, dizziness, ataxia, cranial nerve palsies, hallucinations and delirium have been reported.[3,4] Millions of people are exposed to the amoeba leading to infection each year, however, its early diagnosis and treatment by the administration of drugs such as amphotericin B, fluconazole, and rifampicin, has provided some hope of cure.[5]

Pakistan, and specifically Karachi being a subtropical region, predominantly has a warm climate which provides a favourable ecological niche for this organism. The first case of Naegleria fowleri was reported in Pakistan in 2008. Since then maximum number of reported cases has been from Karachi and its ever increasing occurrence rate over the years is making it particularly worrisome. In 2011, 13 cases of this rare life-threatening infection were reported from Karachi. In 2014, one more fatal case was noted.[6,7] 'Brain-eating amoeba' (Naegleria fowleri), claimed five lives during 2016, (GEO News, Friday 14th April, 2017), while in 2017, 7 cases were reported from Sindh province, (Dawn News reported on 7th June, 2017). These cases have thrown light on various factors leading to acquisition of this infection and resultant high mortality in Pakistan, has being seen a developing country, with a high rate of illiteracy and many people living below the poverty line, the health systems delivery is far from satisfactory level. Later on health facilities are still nonexistent and unreachable for many. Lack of potable water supply and proper sanitation, with lack of awareness, further adds to such problems of epidemics of water borne diseases. It is high time that authorities identify the health problems of masses and take concrete measures to salvage the misery.[6,8]

According to the World Health Organization, for effective chlorine disinfection there should be a residual concentration of free chlorine equal or greater than 0.5 mg/L, after atleast 30 minutes contact time (at 20°C) at pH less than 8.0. This level should be maintained throughout the distribution system.[4] Avoiding warm bodies of fresh water and wearing nose clips while in the water may help prevent such infections. Health authorities should generate more awareness about this disease as it's a 100% preventable disease.

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CONFLICT OF INTEREST
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