report of Clavel et al. [1] would support this hypothesis, we think the identity of their isolate should be confirmed by more reliable methods than morphology to prove that it is a Naegleria isolate. The fact that the case occurred in a patient with AIDS and that the infection could have been related to cold water does not seem consistent with N. fowleri infection.

On the other hand, two other species in the genus Naegleria [6], initially described as subspecies, have been demonstrated to cause PAM in experimental animals [7, 8]. However, to date, these two pathogenic species, N. australiensis and N. italica, have never been demonstrated as causes of PAM in humans. Both species grow at lower temperatures than N. fowleri, which would be in accordance with the site (a relatively cold fresh water pond) where the patient described by Clavel et al. [1] was presumably exposed to the infection. In addition, the development of disease due to these species is less acute [9] than in disease due to N. fowleri; in humans, infection due to N. australiensis and N. italica may be possible only in immunocompromised individuals, unlike N. fowleri infection, which develops in young and healthy people. This case involves an AIDS patient who was 38 years old. Therefore, the possibility that the infection was due to N. australiensis or N. italica cannot be excluded.

Coincidentally, N. australiensis is the species that has the highest number of flagellate cells, with four flagella, while N. fowleri has the lowest number [10]. The presence of cells with four flagella is believed to be an indication that the flagellates are in the process of division, even if the complete process has not been observed [4]. For these reasons, a more precise identification of the causative agent should be sought. We are prepared to perform the species identification at our laboratories with use of modern molecular techniques.

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References


Emerging Antibiotic Resistance in Indian Communities

SIR—The recently reported comparison of antibiotic resistance among bacterial isolates in hospitals in India and the United States points to an apparent similarity in resistance patterns in entirely different communities [1]. This finding is an underrepresentation of the realities in India, where community clinicians prescribe antibiotics to their patients without performing any cultures of the causative bacteria. Many of the people, including physicians and patients, in developing countries might be inadvertently contributing to the emergence of antibiotic resistance by using antibiotics of poor quality and potency. This lack of quality became evident after an analysis of 137 brands of acetyaminophen, ampicillin, co-trimoxazole, and vitamin B preparations being marketed in different regions of Bangladesh [4]. Investigations of residual potency revealed that there were 37 substandard brands being offered to the public. Of the 16 brands of acetyaminophen and 10 brands of ampicillin that were found to be substandard during the analysis, 11 brands and 8 brands, respectively, had already been assessed as substandard by the regulatory authorities.

Use of inappropriately low doses of antibiotics in the community would promote selection of subpopulations of bacteria that...
would grow efficiently in higher concentrations of antibiotics [5]. Incomplete treatment because of poor patient compliance in relation to quantity and duration of antibiotic therapy leads to antibiotic resistance in Mycobacterium tuberculosis and pathogens in surgical abscesses and drainage wounds [6]. The role of subpotent formulations of the least expensive antibiotics, as well as the most expensive antibiotics, in the emergence of antimicrobial resistance and in therapeutic failures should be better evaluated in developing countries. Such resistant strains could be disseminated globally by international travelers and tourists who visit such areas.

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References

Reply

SIR—Dr. Arya is of course correct that the data collected from only a few facilities cannot be expected to reflect accurately the entire spectrum of antibiotic resistance in any country. Be that as it may, our data collected from both public and private hospitals were surprising in that they do not support the common preconception that a much higher prevalence of resistance might exist in India for several reasons, including those suggested in his thoughtful letter. So far, the data suggest otherwise, but, clearly, further studies are needed and are being designed. We welcome collaborators.

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