

Emergence of a highly resistant typhoid strain: a new global health challenge

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Dear Editor,

Typhoid fever is a significant public health issue in low and middle-income countries [1]. It is spread in the presence of contaminated food or water and poor sanitation. According to the World Health Organization (WHO), typhoid fever is responsible for approximately 21 million cases, resulting in more than 200,000 deaths annually [1, 2].

Antibiotic resistance has become a significant problem with *Salmonella typhi* - the causative agent of typhoid fever. Previously, multidrug-resistant strains have been isolated in various parts of the world, until recently, a newer strain of typhoid was isolated in Pakistan which is being termed as extensively drug-resistant (XDR), making Pakistan the leading country to face world's first outbreak of XDR typhoid. In addition to the first line drugs for typhoid, this strain is also resistant to fluoroquinolones and third-generation cephalosporins [1].

This outbreak has led to over 2000 reported cases in the past few months; which calls for trouble. Microbiologists in Karachi have reported isolating the XDR strain in one in three samples from typhoid patients, indicating an increasing burden of the disease. Some cases have also been reported in other countries in travellers returning from Pakistan; hence if not controlled, can result in a pandemic [3].

Antibiotic resistance is a global health emergency which is accelerated by the overuse of antibiotics [4]. In a country like Pakistan where there are no

formal guidelines to treat infectious diseases and where antibiotics are readily available over the counter, the emergence of an XDR strain is not surprising. Moreover, improper sanitation, unhygienic food and insufficient vaccine coverage in most areas of Pakistan have contributed to the spread of the disease [5].

Since the newer typhoid strains are developing antibiotic resistance, treatment options are therefore limited. Hence, it is necessary for the public health authorities to take note of this issue and focus on its prevention. To prevent further outbreaks, a new typhoid vaccine has been approved for addition in Extended Program for Immunization [6]. However, efforts must be made to ensure extensive vaccine coverage along with its booster doses. Additionally, educating the general population regarding hygiene, food safety, and sanitation could be useful in controlling the spread of the disease.

In order to prevent a further rise in antibiotic resistance, it is essential to raise awareness regarding overuse of antibiotics, ban over the counter supply and design treatment guidelines which limit their use. With the increasing number of cases, there is an urgent need for antibiotic resistance to be brought to light in order to promote rigorous research for the development of newer drugs to combat resistant typhoid strains. If the public health authorities and the general population acknowledge the severity of this issue, this outbreak could steadily be controlled, and lives may be saved.

Conflict of interest

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