Drug-resistant typhoid epidemic in Pakistan highlights shortcomings of the public health infrastructure

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Madam, typhoid fever is a communicable acute systemic infection, which if untreated, can have life-threatening complications such as intestinal perforation and haemorrhage. Recently a drug-resistant strain of Salmonella enterica serotype typhi has been responsible for an epidemic in Pakistan. The outbreak, which began in Hyderabad in November, 2016, is now spreading throughout the country and has already infected over 850 people across 14 districts.[1]

The causative bacterial strain, H58, is resistant to five antibiotic classes (chloramphenicol, ampicillin, and trimethoprim-sulfamethoxazole, fluoroquinolones and third-generation cephalosporins). Whole-genome sequencing of the XDR strain has revealed an alarming propensity for global spread and for acquisition of further resistance genes.[2]

Many factors that contributed to this crisis could have been counteracted or at least mitigated. Firstly, there is rampant antibiotic overuse in Pakistan, due to overprescription by physicians, and self-medication by the public, which is facilitated by easy over-the-counter availability of these drugs.[3] Secondly, many areas have inadequate sanitation and sewage disposal systems; this, compounded by illiteracy, overcrowding and mass rural-urban migration, favors the spread of fecal-orally transmitted illnesses including typhoid fever.

This epidemic should, therefore, serve as a call to action for public health authorities to improve housing and sanitation and provide clean water supply to less developed areas in the country. The department of food safety should ensure that food hygiene standards are being maintained by all those involved in preparation, handling and sale of food items. There needs to be stricter control over distribution of antibiotic drugs, to avoid drug resistance following antibiotic misuse.

In the present scenario, thanks to prompt action taken by the World Health Organization and authorities in Pakistan, a safe new conjugate vaccine against typhoid has been approved, and an emergency campaign was conducted in Hyderabad to vaccinate all children below 5 years of age.[4] Significantly, the vaccine is being incorporated in Pakistan's Expanded Program on Immunization (EPI) schedule.[1]

While these efforts are appreciated, any immunization strategy will face several challenges. The EPI has limited coverage in Pakistan, as evident from frequent outbreaks of measles, and the persistence of polio. There is reluctance among Pakistani society towards immunization, an attitude arising from lack of awareness regarding infectious diseases, misinformation about the risks of vaccines, and a perception that vaccination is incompatible with religious beliefs.

To address these issues, effective awareness campaigns should be organized, utilizing mass media. As with polio, it is prudent to have religious scholars publicly endorse typhoid vaccination. In addition, text message-based interventions can be employed to encourage vaccination by sending out reminders to caregivers.[5]

In conclusion, while the typhoid outbreak in Pakistan underlines public health failings, we hope that vaccination drives against typhoid will build on the immunization infrastructures set in place by previous polio eradication efforts.

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