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National Focal Point for International Health Regulations

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Subject: Advisory for Prevention and Treatment of XDR Typhoid

Increased number of typhoid fever cases and isolation of extensively drug resistant (XDR) *Salmonella enterica serovar Typhi* in Hyderabad, Karachi and other areas of Sindh are continuously reported. These XDR cases are resistant to all antimicrobial agents except Azithromycin and Carbapenem. This is a public health alarming situation and demands immediate necessary measures to curtail further transmission and initiate timely and prompt treatment. The objective of this advisory is to sensitize health authorities that azithromycin is the only available oral antibiotic for the treatment of XDR typhoid cases and therefore its judicious use must be emphasized and enforced at all levels, in order to prevent emergence of resistance.

Case Definition: Attached herewith

Mode of Transmission:

Typhoid infection occurs through feco-oral route and spreads through contaminated food, milk, frozen fruits and water or through close contact with already infected patient. The contamination usually occurs due to poor sanitation and mixing of sewerage with drinking water.

Incubation period depends on the inoculum size and host factors; 3 days to >60 days with a usual range of 8 to 14 days. Pre-school children are at greater risk of developing disease and usually have milder symptoms than the adults. Travelers or workers in endemic areas and care-givers of the patient infected with *Salmonella Typhi* are also at higher risk.

Diagnosis:

- *S. Typhi* can be isolated from blood during the first week of illness or from stool and urine after the first week of illness.
- Widal and Typhidot have little diagnostic value due to limited sensitivity and specificity.

Treatment: Patients having history compatible with case definition(s) should immediately report to the hospital. Sample should be collected for culture & sensitivity before starting the empirical therapy. To limit the antimicrobial resistance (AMR), antibiotics should be prescribed based on the results of culture and sensitivity test. Unnecessary use of antimicrobial agents should be discouraged to treat the patients presenting with fever. The XDR Typhoid cases information and lab culture report must be notified to the concerned district health authorities, DG Office of the respective province and the NIH.

Preventive measures and Vaccination:


It is suggested that with the treatment options for typhoid becoming more limited, following preventive measures are urgently needed, including improved sanitation and vaccination campaigns:

- Use of **azithromycin and carbapenem** should be limited and only given to MDR/XDR cases of typhoid fever.
- In case of other infections such as respiratory tract infection including sinusitis, other available drug options should be used instead of oral azithromycin which should be spared/ reserved for lab confirmed XDR Typhoid cases only.
- Thorough hand washing with soap and water is highly recommended after using toilet, before and after attending patient, before handling, cooking and eating.
- Drink treated, boiled or bottled water. Use ice, prepared from clean drinking water preferably boiled. Wash fruits and vegetable properly before eating. Eat freshly cooked, hot served and home-made food.
- Avoid eating raw fruits or vegetables, market prepared or leftover food. Use pasteurized milk.
- Vaccination should be considered especially for those who are travelling to and from endemic areas, high risk group of people and those who are exposed to the disease. Typhoid fever vaccines do not provide 100% protection however they will reduce the severity of the illness.
- Typhoid conjugate vaccine (Typbar-TCV®) is a new conjugate vaccine with longer immunity. WHO has prequalified the first conjugate vaccine in December 2017 to prevent typhoid fever.

Laboratory Diagnosis and NIH Support:

- Lab tests for typhoid fever should be recommended to those who fulfill criteria of suspected case definition available at NIH website (www.nih.org.pk).
- For any further assistance in this context, the Field Epidemiology & Disease Surveillance Division (FE&DSD) (051 – 9255237 and Fax No. 051-9255575) and Public Health Laboratories Division (051-9255082), NIH may be contacted.

The above 'Advisory' may please be circulated widely to all concerned.


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