

4 ENTERIC DISEASES

a Sporadic cases of typhoid in South Africa over January 2016

During the week of 17th to 24th January 2016, four confirmed and one suspected case of typhoid were identified through laboratory alerts in the City of Johannesburg. This prompted an investigation of all typhoid cases reported in South Africa since January 1, 2016, and a review of typhoid case management and public health interventions following identification of a case.

Since January 1, 2016, a total of 19 cases with at least one positive culture for *Salmonella* Typhi has been identified across South Africa. Of these, 10 were reported from Gauteng Province (three from Charlotte Maxeke Johannesburg Academic Hospital, one from Dr Bheki Mlangeni Hospital, two from Edenvale, two from Dr George Mukhari Hospital and a single case each from Chris Hani Baragwanath Hospital and a private Tshwane hospital). The mean age of cases is 19 years (range 0-52 years), with 7 cases presenting in children under the age of 12 years. Four cases had two positive cultures and a single case had three positive cultures. One patient died in an intensive care unit after a delayed diagnosis. By comparison, in the all South African provinces, 72 cases of typhoid were reported in 2015, and 102 cases in 2014. Five cases were reported in January 2015, and 17 in January 2014. Investigation of all 2015 cases including molecular typing techniques on patient isolates, is currently underway to determine sources of infection, and potential interventions to reduce transmission.

Typhoid is endemic within South Africa with an expected seasonal increase in January. Sporadic cases are reported in all provinces every year. Typhoid is spread through the faeco-oral route, and there is ongoing risk of typhoid fever in any area where water quality and sanitation is not optimal. Contamination of water supplies has resulted in numerous large-scale outbreaks. Delmas (Mpumalanga Province) has experienced repeated outbreaks of typhoid fever, with over 1000 cases during 1993, and over 400 suspected cases and three deaths in 2005. In Harare, Zimbabwe, a typhoid outbreak that began in 2012, associated with contaminated water sources, is ongoing, with over 4 000 cases reported.

Any person who presents with a documented fever $\geq 38.5^{\circ}\text{C}$ and clinical symptoms compatible with typhoid should be investigated further. Clinical symptoms of typhoid include fever, headache, rigors and gastrointestinal symptoms (abdominal pain, nausea and vomiting, occasionally constipation). Splenomegaly and/or hepatomegaly may be noted. The classic full blood count shows a leucopenia (but a neutrophilia) and a moderate thrombocytopenia. A travel history within the last month to an area

with a confirmed outbreak of typhoid should increase the clinician's index of suspicion for the diagnosis. **Malaria must always be considered and tested for urgently in any pyrexial, returning traveller or resident in a malaria area.**

The gold standard for the diagnosis of acute typhoid is a positive blood culture. Stool cultures may only become positive after the first week of illness. Culture of bone marrow is useful as it may remain positive even after 5 days of antibiotic treatment. Positive cultures are confirmed by agglutination with specific typhoid antisera, including the Vi antigen. The Widal test which looks for antibodies to *S. Typhi* may be suggestive of the diagnosis but is not confirmatory. Acute and convalescent sera are required.

Ciprofloxacin is the drug of choice for treatment of typhoid. Advantages of treatment with ciprofloxacin include oral twice-daily dosing with rapid resolution of symptoms, and frequent eradication of carriage post-treatment. Alternative treatment includes 3rd generation cephalosporins (ceftriaxone), or azithromycin. No high level resistance to ciprofloxacin in *Salmonella* Typhi in SA has been detected at present.

Typhoid can be prevented through adherence to strict hand washing after using the toilet and before handling food; the provision of safe water, and adequate sanitation. Patients with typhoid fever should pay strict attention to hand hygiene and should not be involved in food preparation until they have been shown to be free of infection.

When a case of typhoid is identified, the following steps are necessary:

- Notify the Local Authority and Department of Health using form GW/17 and telephonically
- Confirm the diagnosis by verifying laboratory results, and patient details.
- Review the case management and treatment
- Interview the patient and complete a case investigation form to ascertain risk factors for exposure and likely source of infection
- Follow up the patient after treatment with three stool specimens to confirm that s/he is not a carrier
- Identify contacts at risk of infection, and submit two stool specimens for culture to determine carriage status.

Guidelines for the diagnosis, management and prevention of typhoid are found on the NICD web site www.nicd.ac.za

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