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Typhoid fever microbiology pdf

Bacterial infection due to a specific type of salmonella Should not be confused with typhus. Typhoid feverThe namesSumerospyres, typhoidZies in the chest of a person with typhoid feverSifoidisInoid diseasesSymptom, abdominal pain, headache, rash[1]Usual onset6-30 days after exposure[1][2]A requestSalmonella enterica subsp. enterica (spread from food or water contaminated with feces)[3][4]Risk factorsSonic hygiene, poor hygiene[3]Diagnostic methodCocide culture, DNA detection[2][3][5][diagnosisGreat infectious diseases[6]Prevention , hand washing[2][7]TreatmentAntibiotics[3]Frequency12.5 million (2015)[8]Deaths149,000 (2015)[9] Typhoid fever, also known simply as typhoid, is a bacterial infection due to a specific type of salmonella that causes symptoms. [3] Symptoms may vary from mild to severe, and usually begin 6 to 30 days after exposure. [1] [2] Often there is a gradual onset of a high fever over several days. [1] This is usually accompanied by weakness, abdominal pain, constipation, headaches, and mild vomiting. [2] [6] Some people develop a skin rash with rose-colored spots. [2] In severe cases, people may experience confusion. [6] Without treatment, symptoms may last weeks or months. [2] Diarrhea is unusual. [6] Other people can carry the bacterium without being affected, but are still able to spread the disease to others. [4] Typhoid fever is a type of intestinal fever, along with paratyphoid fever. [3] The cause is the bacterium *Salmonella enterica* subsp. *enterica* serovar Typhi grows in the intestines and blood. [2] [6] Typhoid is transmitted by the consumption or consumption of food or water contaminated with the feces of an infected person. [4] Risk factors include poor hygiene and poor hygiene. [3] Those travelling in the developing world are also at risk. [6] Only humans can be infected. [4] Symptoms are similar to those of many other infectious diseases. [6] Diagnosis is either by growing bacteria or by detecting their DNA in the blood, faeces, or bone marrow. [2] [3] [5] Growing the bacterium can be difficult. [10] Bone marrow control is the most accurate. [5] A typhoid vaccine can prevent about 40 to 90% of cases during the first two years. [7] The vaccine may have some effect for up to seven years. [3] For those at high risk or people travelling to areas where the disease is common, vaccination is recommended. [4] Other efforts to prevent the disease include the provision of clean drinking water, good sanitation, and hand washing. [2] [4] Until a person's infection is confirmed as cleared, the person does not prepare food for others. [2] The disease is treated with antibiotics such as azithromycin, fluoroquinolones, or third generation cephalosporins. [3] Resistance to these antibiotics has developed, which has made the treatment of the disease more difficult. [3] [11] In 2015, 12.5 million new cases were reported worldwide. [8] The disease is more common in India. [3] Children are most frequently affected. [3] [4] Disease rates in the developed world in the 1940s as a result of improved hygiene and the use of antibiotics to treat the disease. [4] Every year in the United States, about 400 cases are reported and the disease occurs in about 6,000 people. [6] [12] In 2015, it resulted in about 149,000 deaths worldwide – up from 181,000 in 1990 (about 0.3% of the world total). [9] [13] The risk of death may be as high as 20% untreated. [4] With treatment, it is between 1 and 4%. [3] [4] Typhus is a different disease. [14] However, the name typhoid means that it resembles typhus due to the similarity in symptoms. [15] Play media Video summary (scenario) Signs and symptoms Rose spots on the chest of a person with typhoid fever Classics, the progression of unedeed typhoid fever is divided into four different stages, each lasting about a week. During these stages, the patient is exhausted and weakened. [16] In the first week, body temperature increases slowly, and fluctuations in fever are observed with relative bradycardia (Faget sign), malaise, headache, and cough. A bloody nose (episthep) is observed in a quarter of cases, and abdominal pain is also possible. A decrease in the number of circulating white blood cells (leukopenia) occurs with esinopenia and associated lymphocytosis. blood cultures are positive for salmonella enterica subsp. enterica serovar Typhi. The Widal test is usually negative in the first week. [17] In the second week, the person is often too tired to get up, with high fever on the plateau of about 40 °C (104 °F) and bradycardia (sphygmothermic separation or Faget mark), classically with a pulse wave. Delirium can occur where the patient is often calm, but sometimes becomes agitated. This delirium has led to typhoid receiving the nickname nervous fever. Increased spots appear on the lower chest and abdomen in about a third of patients. Rhonchi (crackling breathing sounds) are heard at the base of the lungs. The abdomen is dilated and painful in the right lower quadrant, where a buzzing sound can be heard. Diarrhea can occur at this stage, but constipation is also common. The spleen and liver are enlarged (hepatosplenomegaly) and tender, and liver transaminases are elevated. The Widal test is strongly positive, with antiO and antiA antibodies. Blood cultures are sometimes still positive at this stage. During the third week of typhoid fever, a number of complications may occur: Intestinal bleeding due to bleeding in peyer patches with congestion occurs. This can be very serious, but it's usually not fatal. Intestinal perforation in the peripheral ileus is a very serious complication and is often fatal. to occur without worrying symptoms until sepsis or diffuse peritonitis sets in. Encephalitis Respiratory diseases such as pneumonia and acute bronchitis Neuropsychiatrical symptoms (described as murmur delirium or coma vigil), by picking in bed linen or imaginary objects Metastatic abscesses, cholecystitis, endocarditis, and osteoitis osteoitis fever is still very high and swings very little over 24 hours. Dehydration follows, and the patient is delirious (typhoid condition). A third of infected people develop a macular rash on the torso. Low platelet counts (thrombocytopenia) can sometimes be seen. [18] Causes A 1939 conceptual illustration showing various ways in which typhoid bacteria can infect a water well (center) Bacteria The gram-negative bacterium that causes typhoid fever is salmonella enterica subsp. enterica serovar Typhi. Based on the MLST standardization system, the two main sequence types of S. Typhi are ST1 and ST2, which are currently widespread worldwide. [19] Global phylogenetic analysis showed the dominance of a haplotype 58 (H58) that probably originated in India in the late 1980s and is now spreading around the world carrying multidrug resistance. [20] A recently proposed and more detailed genotype system was mentioned in 2016 and has been widely used ever since. This scheme reclassified the H58 legal system to genotype 4.3.1. [21] Transmission Unlike other salmonella strains, animal typhoid carriers are not known. [22] Humans are the only known carriers of bacteria. [22] S. enterica subsp. enterica serovar Typhi is transmitted through the fecal-oral route by people currently infected and by asymptomatic carriers of bacteria. [22] An asymptomatic human carrier is a person who still excretes typhoid bacteria in their manure one year after the acute stage of infection. [22] Diagnosis is made by any cultures of blood, bone marrow, or faeces and by testing Widal (demonstration of antibodies against salmonella O-physically and H-flagellar). In epidemics and less rich countries, after the exclusion of malaria, dysentery or pneumonia, a therapeutic trial time with chloramphenicol is generally performed pending the results of the Widal test and blood and fecal cultures. [23] The Widal Test Widal Test Test Widal Test Widal Test Test Widal Test is used to detect specific serum antibodies of people with typhoid using antigen-antibody interactions. In this test, the serum is mixed with a dead bacterial salmonella suspension that has specific antigens in it. If the patient's serum carries antibodies against these antigens, then they attach to them by forming a agglomeration that showed the positivity of the test. If no accumulation takes place, then the test is negative. The Widal test is time-consuming and prone to significant false positive results. The test may also be falsely negative during the early course of the However, unlike the Typhidot test, the Widal test quantifies the sample with titles. [24] Quick diagnostic tests Quick diagnostic tests such as Tubex, Typhidot, and Test-have shown moderate diagnostic accuracy. [25] Typhidot The test is based on the presence of specific IgM and IgG antibodies in a specific 50Kd OMP antigen. This test is carried out on a cellulose nitrate membrane where a special outer membrane S. typhi typhi attached as fixed test lines. Identifies separate IgM and IgG antibodies. IgM indicates a recent infection, while IgG means remote infection. The sample pad of this kit contains colloidal gold-anti-human IgG or gold-anti-human IgM. If the sample contains IgG and IgM antibodies against these antigens, then they will react and turn red. This complex will continue to move forward and the IgG and IgM antibodies will adhere to the first test line where the IgG and IgM antigens are present giving a pink-purple colored zone. This complex will continue to move further and reach the control line consisting of rabbit anti-mouse antibodies that bend mouse anti-human IgG or IgM antibodies. The main purpose of the control line is to indicate an appropriate migration and reagent color. The typhidot test becomes positive within 2-3 days of infection. Two colored bands indicate a positive test. A control line zone indicates a negative test. A first fixed-line zone or no zone indicates invalid tests. The most important limitation of this test is that it is not quantitative and the result is only positive or negative. [26] The Tubex test contains two types of brown magnetic particles coated with antigen and blue indication particles coated with O9 antibodies. During the test, if the antibodies are present in the serum, then they will attach to the brown magnetic particles and settle on the base and the blue marker particles remain in the solution giving a blue color that indicates positivity of the test. If the serum does not have an antibody to it, then the blue particle binds to the brown particles and settles at the bottom does not give color to the solution which means that the test is negative and do not have typhoid. [27] Prevention physician administering a typhoid vaccination at a school in San Augustine County, Texas, 1943 Hygiene and hygiene are important to prevent typhoid. It can only spread in environments where human feces are able to come into contact with food or drinking water. Careful food preparation and hand washing are vital for the prevention of typhoid. Industrialization, and in particular, the invention of the car, contributed significantly to the eradication of typhoid fever, since it eliminated the public health risks associated with having horse manure on public roads, which led to the large number of myds,[28] known as carriers of many pathogens, including salmonella spp.[29] According to statistics from the U.S. Centers for Disease Control and Prevention , chlorination of drinking water has led to dramatic reductions in the transmission of typhoid in the United States. [30] Vaccination Two typhoid vaccines are licensed to prevent typhoid:[7] the live, oral Ty21a vaccine (sold as Vivotif by Crucell Switzerland AG) and the injectable typhoid polysaccharide vaccine (sold as Typhim Vi by Sanofi Pasteur and Typherix from Both are effective and recommended for travelers in areas where typhoid is endemic. Boosters are recommended every five years for the oral vaccine and every two years for the injectable form. [7] An older, culled whole cell vaccine is still used in countries where newer preparations are not available, but this vaccine is no longer recommended for use because it has a higher rate of side effects (mainly pain and inflammation at the injection site). [31] In order to help reduce rates of typhoid fever in developing countries, the World Health Organisation (WHO) approved the use of a vaccination programme starting in 1999. Vaccinations have proven to be a great way to control outbreaks in high-impact areas. Equally important, it is also very cost-effective. Vaccination prices are usually low, less than US\$1 per dose. Because the price is low, communities affected by poverty are more willing to benefit from vaccinations. [32] Although vaccination programmes for typhoid have been shown to be effective, they alone cannot eliminate typhoid fever. [32] Combining vaccine use with increased public health efforts is the only proven way to control this disease. [32] Since the 1990s, two typhoid fever vaccines have been proposed by the WHO. The ViPS vaccine is given by injection, while Ty21a is taken through capsules. Only people 2 years of age and older are recommended to be vaccinated with the ViPS vaccine and require re-vaccination after 2–3 years with 55–72% vaccine efficacy. The alternative Ty21a vaccine is recommended for people aged 5 years and older and has a duration of 5-7 years with vaccine efficacy of 51–67%. The two different vaccines have been shown to be a safe and effective treatment for controlling epidemics in many areas. [32] A version combined with hepatitis A is also available. [33] The results of a phase 3 trial of the paired typhoid vaccine (TCV) in December 2019 reported 81% fewer cases among children. [34] [35] Oral Hydration Therapy The rediscovery of oral hydration therapy in the 1960s

