

Tuberculosis in Sub-Saharan Africa and South Africa

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What is Tuberculosis? Tuberculosis which is commonly also known as TB, is a bacterial infection that can spread through the lymph nodes and blood stream to any organ in a person's body. It is a highly contagious disease which is most often found in the lungs and severely affects the lungs. According to the Centers for Disease Control and Prevention (CDC), the infectious agent for Tuberculosis is *Mycobacterium tuberculosis*, which is a rod-shaped, non-motile, slow-growing, acid-fast bacterium.

Many people are exposed to TB in their lifetimes but most of them never develop symptoms of the infection because the bacteria can live in an inactive form in the body of all the people that are exposed. But if the immune system of the person weakens, for example in people with Human Immunodeficiency Virus (HIV) infection or elderly adults, the bacteria causing TB can become active. After the bacteria causing TB becomes active, it causes death of the tissue of the organ that it infects. The active form of TB can be fatal to life if it is left untreated. Since it is spread through air, it is known to be contagious or communicable. It is spread especially when people who have an active form of TB infection cough, sneeze, or transmit respiratory fluids through air. <http://en.wikipedia.org/wiki/Tuberculosis> - cite note-AP-2

According to The National Center for Biotechnology Information, about 9 million people around the world developed tuberculosis (TB) for the first time in 2004, and nearly 2 million people died with or from the disease. The National Center for Biotechnology Information also states that, "A decade ago the problem of TB in Africa attracted little attention, not even meriting a chapter in the first edition of *Disease and Mortality in Sub-Saharan Africa*. Part of the reason was that TB incidence was low and falling in most parts of the continent. The burden of TB in

Sub-Saharan Africa is far greater today.” In Africa, tuberculosis is often the first manifestation of HIV infection, and it is the leading cause of death among HIV-infected patients.

Methodology

Tuberculosis has been seen in mankind for decades, killing a huge number of people until today. According to World Health Organization (WHO), TB takes approximately 2 million lives every year. HIV and TB together form a dangerous combination, both speeding the progress of each other. A person who is infected with HIV is more likely to become infected with TB than a person who is an HIV-negative. TB is a leading cause of death among HIV infected people than any other opportunistic infections. TB accounts for about 11% deaths related to AIDS worldwide. A question arises, why is the prevalence of TB a huge burden in some parts of the world? WHO states, “TB occurs in every part of the world. In 2013, the largest number of new TB cases occurred in the South-East Asia and Western Pacific Regions, accounting for 56% of new cases globally. However, Africa carried the greatest proportion of new cases per population with 280 cases per 100,000 in 2013.”

In the following sections, we will look at the regions of Sub-Saharan Africa that have been affected by Tuberculosis and then focus in a country that has the most burden of the infection.

Sub-Saharan Africa

Sub-Saharan Africa has become one of the leading regions all around the world that has the highest burden of Tuberculosis (refer to figure 1). “Sub-Saharan Africa has continued leading in prevalence and incidence of major infectious disease killers like HIV/AIDS, Tuberculosis and malaria” (Mboowa, Gerald, 2014). This study particularly focuses on the Genetics of Sub-Saharan African Human Population that implies to the susceptibility of the people becoming

infected. Data published by the World Health Organization (WHO 2014, <http://www.who.int/mediacentre/factsheets/fs104/en/>) indicate that Sub-Saharan Africa carried the highest proportion of new tuberculosis cases of the population with over 255 cases per 100,000 populations in 2012.

“Sub-Saharan Africa is important regarding origin of human species and the way in which genetic variation affects human phenotypes. Africa is thought to be the ancestral homeland of all modern humans and is the most recent homeland of millions of individuals whose ancestors were brought to Europe and to the Americas as slaves” (Mboowa, Gerald, 2014).

“It is estimated that only 10% of those who become infected with Mycobacterium tuberculosis will ever develop clinical disease” (Murray, Styblo, Rouillon, 1990). In Africa, HIV is the single most important factor determining the increased incidence of TB in the past 10 years. Tuberculosis has become a burden because the people who are infected cannot have access to medication either due to the lack of resources to fulfill the expenses of the medications or due to the lack of knowledge about the need to get tested for TB and the need of medication.

In Sub-Saharan Africa, HIV has become one of the major cause of TB incidence tripling since the 1990s and in some countries 80% of TB patients are becoming co-infected with HIV. One of the biggest concerns in controlling these two problems is a lack of integrated TB and HIV services. Only 1% of people living with HIV in 2008 had been screened for TB. People are not being able to get screened for TB because they lack the knowledge of the importance of getting screened and they also have a stigma that their lives are not going to be the same after they get positive results for TB test. The stigma associated with TB is enormous, keeping people from

getting them screened for TB which can make the infection worse over time, in the absence of treatment.

Tuberculosis in South-Africa

According to National and provincial statistics by TB Facts.org, out of the total population of approximately 50 million, about 1 % develop active TB infection every year. World Health Organization (WHO) states that South Africa is one of the countries with the highest burden of TB, providing statistics estimated incidence of 500,000 cases of active TB in 2011. “This is worldwide the third highest incidence of any country after India and China, and the incidence has increased by 400% over the past 15 years” (Kanabus, TB Facts.org, 2011).

“Out of the 500,000 incidences in South Africa, it is estimated by WHO that about 330,000 (66%) people have both HIV and TB infection. The latest figure from the South African Department of Health is that 73% of TB patients are HIV positive” (Kanabus. 2011). WHO gave a prevalence figure for active TB of 390,000 people in South Africa in 2011.

According to an article titled ‘TB is Number One Killer in South Africa’, “As the world observes World TB Day on March 24 to raise awareness of the fight against tuberculosis, South Africa is struggling to conquer its top killer” (Khumalo, 2014). The author of the article particularly focuses on the major factors which are the reasons for such a huge burden in South Africa, such as, lack of good nutrition, lack of resources and poverty.

According to Khumalo (2014), “Dr. Ahmed Mohamed has operated a private surgery practice for years at Bekkersdal - one of the areas hit by violent protests in South Africa because of poor living conditions. He said unless the government decentralized TB treatment centers to poor communities and improved general living condition; the fight against TB was a lost cause.” This shows that the conditions of South Africa could get better in terms of new infections of TB,

but the people are not being able to access health services because they are poor and cannot afford to buy medicines that can treat the infection. Poor living condition is one of the main reasons that contribute to the spread of infection among such a huge population.

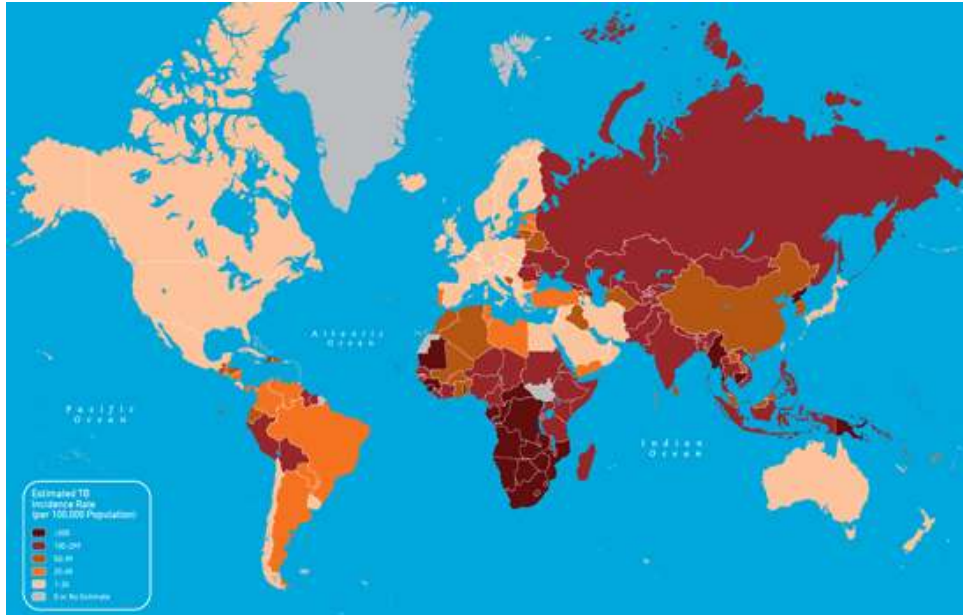


Figure 1: The global distribution of prevalence of TB.

Analysis

The first case discusses the major factor that contributes for people to become infected with TB as being immunosuppressed due to HIV infection. HIV infection weakens the immune system of the people which makes it easier for the TB bacteria to take over the body and the organs. After analysis, it was revealed that 80% of the TB patients were co-infected with HIV, which makes it clear that TB is an opportunistic infection that mostly affects the people who have been exposed to TB bacteria and have weakened immune system. It also clarifies that the people who have strong immune system are not affected by the bacteria but have the bacteria in their body lying dormant.

The second case study presented in the Sub-Saharan country of South Africa talked about the stigma and discrimination associated with TB which makes it difficult for the people to go and get screened for the infection. It also discussed how people are not being able to get medication due to extreme poverty and lack of health services. The people are living in extremities and close proximity which is also contributing to the spread. The people are in self-denial of becoming infected because they are scared of the social stigma and discrimination associated with the infection.

Conclusion

We all know that TB is a contagious fatal infection. It has been known to infect millions of people for decades. The infection can be cured by getting screened and taking medicines. The health care workers need to spread awareness among the communities so that people can get screened for the infection. The government should talk about the infection and should make medications and health services available to poor people. Together with the government and the communities, we can bring an end to new infections by spreading knowledge and awareness.

References:

1. World Health Organization, 2013.

<http://www.who.int/mediacentre/factsheets/who104/en/print.html>

2. C. J. L. Murray, K. Styblo, and A. Rouillon, "Tuberculosis in developing countries: Burden, intervention and cost," *Bulletin of the International Union Against Tuberculosis and Lung Disease*, vol. 65, no. 1, pp. 6–24, 1990.

3. Mboowa, Gerald. "Genetics of Sub-Saharan Africa Human Population: Implications for HIV/AIDS, Tuberculosis, and Malaria." *International Journal of Evolutionary Biology* 2014(n.d.): n. pag. Web. 3 Dec. 2014.

<http://www.hindawi.com/journals/ijeb/2014/108291/#B38>.

4. Kanabus, Annabel. "TB in South Africa | National & Provincial Statistics." *TB Statistics for South Africa*. N.p., 2011. Web. 03 Dec. 2014.

<http://www.tbfacts.org/tb-statistics-south-africa.html>

5. Khumalo, Thuso. "TB Is Number One Killer in South Africa." *VOA. Voice of America*, 21 Mar. 2014. Web. 03 Dec. 2014.

<http://www.voanews.com/content/tb-is-number-one-killer-in-south-africa/1876553.html>