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OUTBREAK OF SARS

Ambreen Shakil, Muhammad Imran Omar* and Saba Sohail**

Severe acute respiratory syndrome (SARS) has recently been reported from Asia, North America and Europe. What was initially considered as an atypical pneumonia has now become SARS. It is a respiratory droplet infection and may also be transmitted with a direct contact of patient's secretion. The incubation period is typically 2 to 7 days and the disease is characterized by fever, chills, headache, feeling of discomfort and body aches. After 2 to 7 days, patients may develop dry or productive cough. Diarrhea and vomiting can also occur.¹

The World Health Organization has confirmed a novel corona virus (having crown like appearance under a microscope) to be the causative agent. Researchers have proposed to call the virus "Urbani coronavirus" after Carlo Urbani, WHO's Hanoi based doctor, who contacted the disease and died on 29th March, 2003 of SARS. Coronavirus are single stranded, enveloped, positive polarity RNA virus. These are associated with common cold and other respiratory tract infections. The annual incidence of this virus varies, but is responsible for approximately 20 percent of common cold cases. Coronavirus not only affects humans, but is also associated with diseases of respiratory, gastrointestinal, hepatic and neurological systems in animals. Some of the diseases in animals caused by this virus can be prevented through vaccination. So scientists are optimistic that SARS can also be prevented some day. Researchers are also working to know the survival of this virus outside the body, its concentration in various body fluids and the point at which the patients are most infectious.² According to Dr. David Heymann, WHO's executive director of communicable diseases, "The pace of SARS research has been outstanding."

SARS has been the most vexing infectious syndrome since the emergence of hantavirus outbreak. With the modernization of life, communicable diseases are becoming more common and most of these arise in the East, a treacherous result of trade and modernity. The Black Death is thought to be originated from the Gobi desert. It is speculated that the initial source of SARS is Guangdong Province of China, where an outbreak of respiratory illness killed 31 people in February 2003. The first known case of SARS in Hong Kong was a nephrologist, who had traveled to Hong Kong from southern China on February 21, 2003.³

The identification of SARS in Canada, within a few weeks of its first report, highlights the ease with which infectious diseases are transmitted in this jet age. The outbreak of SARS shows no sign of control and so far more than 5000 people are

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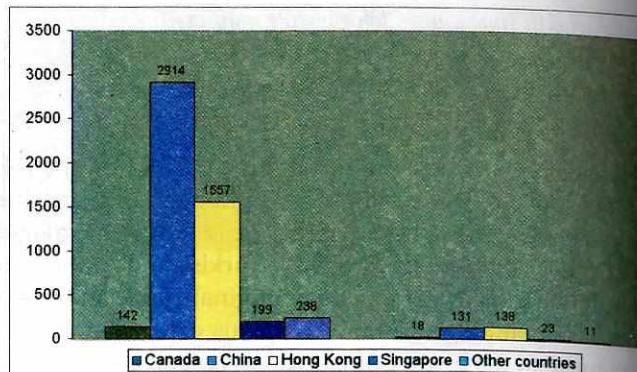


Figure 1: Morbidity and mortality of SARS as estimated by WHO.

infected in 26 countries. By April 28th 2003, 321 deaths have been reported worldwide. According to Professor Chung of Chinese University of Hong Kong, "a long and difficult battle is ahead of us, there will be a lot of rumors circulating around, both by word of mouth and by the mass media." On 14th April, seven more deaths were reported from Hong Kong in the previous 24 hours. Outbreaks in China, Hong Kong, Singapore and Canada have worsened and there are no signs of control as yet. University of Toronto has cancelled some of its activities involving students in medicine, nursing, pharmacy, dentistry and physical therapy at its affiliated hospitals. China has the single biggest number of cases (2914) and 131 people have died of SARS by April 28th. Number of reported cases and deaths due to SARS by 28th April 2003, as estimated by WHO, are shown in the Figure 1.^{4,5}

Suspected or confirmed cases of SARS are also reported from other countries including Thailand, Malaysia, Indonesia, Philippines, United States, United Kingdom, Switzerland, France and India. Four cases have been reported so far from India, one from Goa and three from Pune.² Pakistan remains at high risk of the entry of virus as Pakistan-China transit way opens officially for trade on the first of May at the Khunjerab Pass. Only a thorough and strict vigilance can prevent this epidemic from entering into Pakistan especially in the Gilgit and Baltistan areas.

World Health Organization has suggested certain guidelines for the management of SARS. These include isolation of the patient and taking samples (sputum, blood, sera and urine) to exclude other causes of pneumonia. Chest radiograph may be taken to see the possibility of co-infection with other organisms. A number of tests should be performed like CBC, platelet count, creatine phosphokinase, liver function tests, urea and electrolytes, C-reactive protein and paired sera. At the time of admission antibiotics for the treatment of community acquired atypical pneumonia is recommended. Therapies and interventions, which may cause aerolization, are recommended. In 10% to 20% of cases, patient may require mechanical ventilation. Treatment also includes antiviral drugs especially ribavirin. Patients may also require steroids. A rapid test is also developed to detect coronavirus in patients.⁵

In a study conducted by Lee *et al.*, it was shown that advanced age, male gender, a high peak creatine kinase value, a high lactate dehydrogenase level on presentation and a high peak value, a high initial absolute neutrophil count, and a low serum sodium level were significant predictive factors for intensive care unit admission and death. Other co-existing diseases were not associated with a worse clinical outcome.⁶ In the same study, postmortem examination of the lungs showed grossed consolidation. Pulmonary edema was also found with hyaline membrane, suggesting early phase of acute respiratory distress syndrome (ARDS).⁶

SARS has a low mortality of around 4 percent and attacks people of all age groups, but the virus is highly contagious, and household contacts have also become ill. Surgical face masks and the N95 face masks are effective in preventing the spread of droplet infections of SARS.⁷ According to Professor John Oxford of Queen Mary's College in London, "There's not much you can do to avoid this, unless you go and live as a hermit".

Although the mystery of causative agent of SARS is over but the death toll is increasing. Scientists and leaders from all over the world are working together to prevent a global pandemic of this disease. This is also affecting the economy of the world as the transit routes from the east are closing down and people are avoiding travels to the SARS inflicted areas. Scientists

are working hard but the epidemic is spreading at a tremendous rate despite all heroic measures and only time will tell the efficacy of measures to prevent the global pandemic of SARS.

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