

# Severe Acute Respiratory Syndrome: A Highly Virulent Atypical Pneumonia

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## Perspective

Severe Acute Respiratory Syndrome (SARS) is a newly reported respiratory illness. It is a viral respiratory illness which is caused by a coronavirus termed as SARS-associated Coronavirus (SARS-CoV). Exposure to SARS-CoV results from close personal contact with infected individuals. Transmission is generally through the result of touching the skin of an infected person or objects contaminated with infectious droplets and then transferring the virus to the new host's mouth, eyes and nose. Pneumonia was defined as the presence of a new or progressive infiltrate on a chest radiograph, fever, dyspnea, hemoptysis, cough, sputum production, and attending physician's diagnosis of pneumonia.

In recent years, many viruses were identified as a causative agent for viral infection. The vast majority of patient will develop mild pneumonia or simple viral bronchitis, whereas other patients with specific risk factors will develop severe respiratory infection. Clinical management of this type of infection will depend on patient condition rather than on virus virulence. Viruses which are usually associated with non-severe pneumonia pertain to the families of adenovirus, metapneumovirus, Respiratory Syncytial Virus (RSV), para-influenza virus and influenza A and B viruses

SARS is the first severe and readily transmissible new disease to emerge in the 21<sup>st</sup> century. SARS has shown a clear capacity for spread along the routes of international air travel. At present, the outbreaks of greatest concern are concentrated in transportation hubs or spreading in densely populated areas.

SARS needs to be regarded as a particularly serious threat for several reasons. The disease has no vaccine and no treatment, forcing health authorities to resort to control tools such as isolation and quarantine. The virus comes from a family notorious for its frequent mutations, raising important questions about the future evolution of outbreaks and prospects for vaccine development.

With regard to the pathogenesis of SARS, several mechanisms

involving both direct effects on target cells and indirect effects via the immune system may exist. Vaccination would offer the most attractive approach to prevent new epidemics of SARS, but the development of vaccines is difficult due to missing data on the role of immune system-virus interactions and the potential mutability of the virus. SARS remains a major health hazard even in a situation of no new infections, as new epidemics may arise. Therefore, further clinical and experimental research is required to control the disease.

The important development of SARS vaccines can be developed using several techniques which should ideally encompass the induction of both humoral and cell-mediated mechanisms. As coronavirus vaccines in animals have partly been reported to cause an enhancement of viral infections, a cautious approach has to be followed.

The onset of the SARS epidemic in different continents has led to the formation of a laboratory network to identify the molecular mechanisms underlying the SARS infection. It is most important to orchestrate research activities which lead to the development of vaccines and antiviral agents, as there is no established therapy to date. Even now in a situation of only a handful of new cases, SARS remains a major global health hazard which may reappear.