Science of SARS

The isolation and full genetic sequence of the new coronavirus that is responsible for the current outbreak of SARS has been accomplished by Canadian and American researchers. The genetic sequence shows that this coronavirus is unlike any previously known to infect humans. It is also not like any known coronavirus that infects animals. The sequence indicates that this is not a simple case of an animal coronavirus making a "species jump" by gaining the ability to infect humans. Research experiments in Europe have shown that the coronavirus can infect primates, and produces the same pneumonia-like symptoms seen in human beings.

There has been a flurry of recent hysteria in the press about the SARS virus mutating rapidly into a more deadly form. This is not supported by any of the evidence, which in fact shows that the coronavirus isolated by the Canadian team differs in only 10 base pairs out of 30,000 from the one isolated by the American team at the Centers for Disease Control (CDC). In the behavior of a coronavirus, it makes mistakes by design when it replicates, leading to minor random changes in its genetic sequence. These changes may disable the virus, or may help it replicate, or may do nothing functionally to it. There has been no research published that shows that the small natural mutation rate of this virus has changed, and to do so would require viral isolates taken and compared over a long period of time.

New research has shown that other modes of transmission of the SARS coronavirus may be possible. Hong Kong researchers have reported that the virus is present in stool and urine from SARS patients, and the virus may survive up to 24 hours in excrement. This raises the question of whether sewage contamination can spread SARS, which is being investigated in the case of the Amoy Gardens apartment complex in Hong Kong, where about 300 people became infected.

In a study published on May 7, Hong Kong and British researchers have shown that the death rate for SARS patients in Hong Kong who are hospitalized is higher than previously reported. The study shows that patients under 60 years of age have a mortality rate of 13%, while for patients over 60, the mortality rate is 43%. However, in other parts of the world, the mortality rates for SARS patients who require hospitalization has been much lower, and in the United States, there have been no deaths.

—Colin Lowry