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Impact of Severe Acute Respiratory Syndrome on Liver Transplantation Service

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ABSTRACT

Severe acute respiratory syndrome (SARS) struck 1755 patients in Hong Kong and developed into a global health crisis. Although the World Health Organization and national health authorities are sparing no effort to contain the disease and to find a cure for the potentially deadly infection, SARS has an impact on our liver transplantation (LTx) program. Before the SARS outbreak, an average of 1 LTx was performed per month in our center. For 6 months since the outbreak, there had been no LTx performed. The intensive care unit had to be dedicated to patients with SARS. Two of the LTx team members were struck by SARS. A survey conducted among LTx recipients and their family members ($n = 45$) demonstrated symptoms of anxiety and stress in all. Some LTx recipients were treated at the Emergency Department for suspected SARS, which were later confirmed to be false alarms. Many LTx patients were too frightened to come back for follow-up. A new strain of coronavirus was identified as the causative agent. The origin of this virus is uncertain but the probability of zoonoses is being seriously discussed. Not only are immunosuppressed patients exposed to higher risk of infection, but also the waiting list mortality is also expected to increase. The SARS outbreak has demonstrated the vulnerability of an organ transplantation service and reminds us of the fearful possibility of zoonoses in future xeno-transplantation.

IN MARCH 2003, there was an outbreak of atypical pneumonia in Hong Kong. The disease often resulted in an acute respiratory distress syndrome (ARDS) and was named severe acute respiratory syndrome (SARS).¹ To date, SARS has struck 1755 persons in Hong Kong with a death toll reaching 302 (a mortality rate of 17.2%). A novel coronavirus has been discovered to be responsible for the infection.² Through rapid transmission from 1 patient from China, SARS developed into a global health crisis.³

PATIENTS AND METHODS

Although the World Health Organization and national health authorities have spared no effort to contain the disease and the scientific community has studied this potentially deadly infection, SARS has had an impact on our liver transplantation (LTx) program. A survey among LTx recipients and their families was conducted to examine their stress and anxiety levels in relation to SARS by means of a questionnaire.

RESULTS

During the past 3 years, our center has been gradually increasing LTx activities to an average of 1 case per month.

For 6 months since the outbreak of SARS, there has been no LTx. Two patients on the waiting list died during this period. The Intensive Care Unit had to be dedicated to patients with SARS until recently. Two LTx team members were struck by SARS and have been out of action for 2 months. A survey using a standard psychological questionnaire was conducted among LTx recipients and their family members ($n = 45$). All respondents demonstrated symptoms of anxiety and stress; 30% suffered a moderate degree and 70% a mild degree of the illness. Among 29 LTx recipients being regularly followed by our out-patient clinic, 4 LTx recipients were treated at the Emergency Department for suspected SARS, which were later confirmed to be false alarms. Although none of the LTx recipients had

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contacted the disease, 6 LTx patients were too frightened to come back to the hospital for their follow-up appointments.

DISCUSSION

A new strain of coronavirus has been identified as the causative agent for SARS. The origin of this coronavirus is uncertain. Chinese scientists reported that the genetic makeup of a virus isolated from human patients with SARS was similar to a virus found in animals that had been captured and held in a retail food market.⁴ Tests showed that the animals (civets, raccoon-dogs, and ferret badgers) had a coronavirus that was 99.8% genetically identical to the virus that causes SARS in humans. The fact that this strain of coronavirus is a common pathogen among animals indicates likely zoonoses. With the LTx and other hospital essential services almost completely paralyzed, the cost to the health system was enormous. Two patients on the waiting list have died so far, but the mortality rate is expected to increase as a delayed phenomenon.

Transmission of human infections (human immunodeficiency virus/acquired immunodeficiency syndrome, hepatitis B, hepatitis C, and so on) via transplanted human allografts is well documented. The implication of future

organ donation from people with SARS virus is an unknown concern. With xenografts there are enhanced risks of zoonosis because of the intimate contact between the recipient and animal tissues, disruption of anatomical barriers, and heightened immunosuppression. The full spectrum of infectious agents potentially transmitted via xeno-transplantation is not well-known. The outbreak of SARS should be taken as a serious reminder of the potential deadly consequences of zoonoses.

In conclusion, the SARS outbreak demonstrated the vulnerability of an organ transplantation service. The human and financial costs are significant. The outbreak also reminds, one of the fearful possibility of zoonoses in future xeno-transplantations.

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