

CORRESPONDENCE



The Use of Corticosteroids in SARS

TO THE EDITOR: The use of systemic corticosteroids in patients with the severe acute respiratory syndrome (SARS) is of serious concern. Lee and colleagues report anecdotal success in their article on SARS elsewhere in this issue.¹ And in the recent Web broadcast on SARS by the CDC, Dr. Sung, one of the coauthors, states, “High-dose steroid should be given early to stop the progression of the disease.”² The pathogenesis of SARS is diffuse alveolar damage with the acute respiratory distress syndrome (ARDS), not bronchiolitis obliterans with organizing pneumonia. And SARS is most likely due to coronavirus pneumonitis. Early treatment with corticosteroids in patients with ARDS is highly controversial and is not a standard of care, at least in North America. Although ribavirin has activity against coronaviruses and human metapneumoviruses in vitro, there are no antimicrobial agents with proven effectiveness for the treatment

of SARS at this point. And the use of corticosteroids with possibly ineffective antiviral agents in patients with viral-induced pneumonitis or ARDS can be hazardous. I believe systemic corticosteroids should not be used at least until the etiologic agent of SARS has been confirmed and effective antiviral agents have been established.

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1. Lee N, Hui D, Wu A, et al. A major outbreak of severe acute respiratory syndrome in Hong Kong. (Available at <http://www.nejm.org>.)

2. Preventing the spread of severe acute respiratory syndrome (SARS). Atlanta: Centers for Disease Control and Prevention, 2003 (broadcast). (Accessed April 25, 2003, at <http://www.cdc.gov/ncidod/sars/webcast/broadcast040403.htm>.)

THE AUTHORS REPLY: We agree with Dr. Oba that the efficacy of antiviral agents is not certain and that the use of corticosteroids in patients with infectious disease is potentially hazardous. But SARS is a serious disease with a rapid downhill course. In the Canadian report, 5 of 10 patients required mechanical ventilation, and 3 died.¹ Of the three patients who received broad-spectrum antibiotics, 2 died and 1 remained in the intensive care unit. According to another report on SARS elsewhere in this issue, antibiotics alone did not have any clinical benefit in patients.²

The combination of ribavirin and corticosteroid is an empirical therapy but not without basis. Ribavirin is an antiviral agent previously shown to be effective for respiratory syncytial virus infection, influenza virus A and B infections, measles, parainfluenza, and Lassa fever. It was chosen in this case because of its broad-spectrum coverage. It is also known that in acute viral respiratory infections, early-response cytokines such as interferon-tumor necrosis factor, interleukin-1 and interleukin-6 mediate lung injury. We used corticosteroid treatment

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to suppress the cytokine storm, hoping that would stop the progression of pulmonary disease. And, in fact, in many cases, it did. Lung shadows started to resolve, and oxygenation improved after corticosteroid treatment. We must emphasize that corticosteroids were not used to treat ARDS. We are in the process of analyzing the clinical responses to these treatments and will make that information available as soon as possible.

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1. Poutanen SM, Low DE, Henry B, et al. Identification of severe acute respiratory syndrome in Canada. (Available at <http://www.nejm.org>.)
2. Tsang KW, Ho PL, Ooi GC, et al. A cluster of cases of severe acute respiratory syndrome in Hong Kong. (Available at <http://www.nejm.org>.)

SARS in Northern Vietnam

TO THE EDITOR: The outbreak of a new, potentially severe, infectious disease, without known cause or treatment, is a stressful challenge, both for patients and for physicians. Our only therapeutic weapons may be individual protection by means of masks, glasses, gloves, smocks, or even suits designed like those that protect against nuclear, biologic, and chemical agents. We would like to summarize our experience with severe acute respiratory syndrome (SARS) in 39 patients in Vietnam.

The incubation period appeared to be about four or five days, after direct contact with a sick patient. In our experience, there did not seem to be any healthy carriers. During the initial phase, before the onset of the respiratory disease, the symptoms mimicked those of influenza. In all cases, the temperature was 38°C or higher. Anybody who has fever and has been in contact with a patient with SARS must be considered to be infected. In addition to fever, there were often diffuse myalgias and severe headache. The fatigue was constant.

After the index patient, all our infected patients were members of the hospital staff. Blood counts usually showed moderate neutropenia and thrombocytopenia. SARS was confirmed because of the epidemic context. Plain-film radiographs of the chest were normal initially but became abnormal three to five days later, with infiltrates visible in 90

percent of the cases and other changes visible in the remainder. Unilateral or bilateral peripheral or central interstitial infiltrates were diagnostic findings.

The subsequent evolution of the illness involved respiratory symptoms that were severe in some patients and moderate or mild in others. The cough was constant and dry, except when there was superinfection. Findings on auscultation were normal at the onset, but usually fine crackles could be heard in the lower lobes several days later. Dyspnea was seldom absent, and it occasionally became severe, leading to acute respiratory distress with hypoxemia and hypercapnia and requiring mechanical ventilation (in 15 percent of our patients). In the patients with severe dyspnea, plain-film radiographs of the chest showed major bilateral infiltrates. To date, 5 of our 39 patients have died of the acute respiratory distress syndrome, despite ventilation with the use of positive end-expiratory pressure; the rest appear to be recovering.

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Pulmonary-Artery Catheters in High-Risk Surgical Patients

TO THE EDITOR: The study by Sandham et al. (Jan. 2 issue)¹ showed no improvement in outcome resulting from goal-directed therapy guided by pulmonary-artery catheter in high-risk surgical patients. The main targets (an oxygen-delivery index of 550

to 600 ml per minute per square meter of body-surface area and a cardiac index of 3.5 to 4.5 liters per minute per square meter) were reached by only about 20 percent of the patients preoperatively and by less than 80 percent during the postoperative pe-