Diabetes and other comorbid conditions were associated with a poor outcome in SARS

Booth CM, Matukas LM, Tomlinson GA, et al. **Clinical features and short-term outcomes of 144 patients with SARS in the greater Toronto area.** JAMA. 2003;289:2801-9.

QUESTION

In patients with the severe acute respiratory syndrome (SARS), what clinical and laboratory features are associated with a poor outcome of death, intubation, or the need for intensive care unit (ICU) admission?

DESIGN

Inception cohort followed for 21 days.

SETTING

10 academic and community hospitals in Toronto, Ontario, Canada.

PATIENTS

144 patients (median age 45 y, 61% women) who met the Center for Disease Control and Prevention criteria for suspected SARS (fever, known exposure to SARS, and either respiratory symptoms or infiltrates observed on chest radiograph) who were admitted to hospitals in the greater Toronto area between 7 March and 10 April 2003. Patients were excluded if an alternative medical or microbiological diagnosis explained their clinical presentation.

ASSESSMENT OF PROGNOSTIC FACTORS

During the SARS outbreak, a trained team of physicians and medical students reviewed patient charts and collected demographic, clinical, and laboratory information using standardized data collection forms. Associations between prognostic factors and poor outcome were assessed using univariate and multivariable statistical methods.

MAIN OUTCOME MEASURE

Poor outcome defined as death, need for mechanical ventilation, or ICU admission.

MAIN RESULTS

At 21 days, 30 patients (21%) in the cohort met the criteria for a poor outcome (8 patients had died, 20 received mechanical ventilation, and 29 had been admitted to the ICU). In 27 patients, the poor outcomes occurred within the first 6 days after hospital admission. Univariate analysis showed that male sex and increased age, neutrophil count, and creatinine kinase and urea levels were associated with poor outcome. Multivariable analysis showed that presence of diabetes (relative risk [RR] 3.1, 95% CI 1.4 to 7.2) or other comorbid conditions (chronic obstructive pulmonary disease, cancer, and cardiac disease) (RR 2.5, CI 1.1 to 5.8) were each independently associated with poor outcome.

CONCLUSION

In patients with the severe acute respiratory syndrome, presence of diabetes or other comorbid conditions (including chronic obstructive pulmonary disease, cancer, and cardiac disease) was associated with a combined outcome of death, intubation, or the need for intensive care unit admission.

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COMMENTARY

The study by Booth and colleagues describes clinical features of patients with SARS who were admitted to hospitals in Toronto and corroborates many of the observations made during the SARS epidemic in Hong Kong in a study by Lee and colleagues (1). Differences between these studies in predictors of a poor outcome are largely related to the choice of variables entered into the regression models. In addition, the regression analyses in both studies are limited by the relatively small number of patients who had a poor outcome.

Neither of these studies included data from nonhospitalized patients who met criteria for SARS in their analyses. Including data from these patients would provide information about the full spectrum of SARS. Neither study compared the incidence and prevalence of various clinical and laboratory findings to those in patients who were admitted to the hospital because of other atypical types of pneumonia. This kind of information would provide some specificity to the claims about SARS. Neither study had complete patient follow-up. 23% of patients in the Toronto-based study by Booth and colleagues and 45% of patients in the Hong Kong–based study (1) were still in the hospital at the time of writing the respective papers, after which it is possible that more poor outcomes occurred. Furthermore, neither study used a severity of illness score to compare actual with predicted hospital mortality for those patients who were admitted to the ICU. Severity of illness during the first 24 hours after admission to the ICU is a better predictor of hospital mortality than comorbid conditions (2). Description of SARS is the first step in understanding this condition, but studies among nonhospitalized patients and comparisons with other patients at risk will help to distinguish this syndrome from similar conditions and to guide specific therapy.

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