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NEWS

RSNA Press Release

CT Images Help Physicians Diagnose SARS

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OAK BROOK, Ill., May 13, 2003 - Radiologists have used computed tomography (CT), a diagnostic imaging procedure that uses special x-ray equipment to obtain cross-sectional pictures of the body, to better define severe acute respiratory syndrome (SARS).

In a study published online May 8, 2003 at www.rsna.org and in the August 2003 issue of the journal Radiology, Anil T. Ahuja, M.D., and a team of physicians from Hong Kong's Prince of Wales Hospital analyzed the CT images of 73 patients with symptoms and signs suggestive of SARS. The patients were hospitalized from March 11, 2003 to April 2, 2003 during an outbreak of atypical pneumonia at Prince of Wales Hospital.

Without a diagnostic test for the syndrome, physicians must use the clinical appearance of the patient in combination with chest radiography to diagnose SARS.

"Until a reliable diagnostic test for SARS is available, physicians need a clear picture of its clinical presentation to be on the alert for the condition," said Dr. Ahuja, chairman of the department of diagnostic radiology and organ imaging, The Chinese University of Hong Kong. "Our study should help physicians worldwide in diagnosing SARS."

The Centers for Disease Control and Prevention (CDC) defines the clinical appearance of SARS by three criteria:

- high fever
- pneumonia or acute respiratory distress syndrome
- travel within 10 days of onset of symptoms to an area with documented or suspected community transmission of SARS or close contact with such a person or a suspected SARS patient

The researchers' retrospective analysis identified three common features among the CT scans of SARS patients: ground-glass opacification, lower lobe distribution and peripheral distribution. Opacification, which appears as a hazy, whitened area of the lungs on a CT scan, indicates increased fluid between the layers of lung cells. The CT scans of SARS patients were more likely to show abnormality in the lower parts of the lung closer to the diaphragm and the periphery of the lungs just under the rib cage. Most importantly, the

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study determined that CT can be especially valuable in diagnosing patients who have a normal chest x-ray but very strong clinical signs suspicious of SARS.

"The three-dimensional, cross-sectional images produced by CT are more sensitive than radiographs and better able to show lung abnormalities," said Dr. Ahuja.

Seventeen patients in the study had symptoms of SARS but normal chest x-rays. A follow-up, thin-section CT detected lung abnormalities in each patient.

"Our study shows that CT can be used as a definitive investigation in questionable cases of SARS," Dr. Ahuja said. "This is extremely important because only with early recognition, prompt isolation and appropriate therapy can we combat this deadly infection."

"We are only just getting to know SARS, and more research is needed to give us a reasonable picture of this new disease," Dr. Ahuja said. "The true picture will only become clearer when we have more clinical, laboratory, and radiological correlation and long-term follow-up of patients."

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"Thin-Section CT of Severe Acute Respiratory Syndrome: Evaluation of 74 Patients Exposed to or with the Disease." Collaborating with Dr. Ahuja on this paper were K. T. Wong, M.D., Gregory E. Antonio, M.D., David S.C. Hui, M.D., Nelson Lee, M.D., Edmund H. Y. Yuen, M.D., Alan Wu, M.D., C.B. Leung, M.D., T. H. Rainer, M.D., Peter Cameron, M.D., Sydney, S. C. Chung, M.D., and Joseph J. Y. Sung, M.D.

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