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CT findings of human metapneumovirus pneumonia: novel respiratory viral infections

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PURPOSE: The description of CT findings of human metapneumovirus (hMPV) has been limited to a few reports. Objective of our study was to evaluate characteristic CT findings in patients with hMPV infection and correlation with clinical findings.

MATERIALS AND METHODS: We retrospectively collected patients proven hMPV pneumonia with positive results of RT-PCR for hMPV via medical record search from January 2010 through December 2011(n = 403). We excluded the patients with any other infectious organisms were identified. Among them, chest CT scans within 1 week period of the time of diagnosis were assessed. The CT scans were evaluated for the presence of abnormality and characterized by pattern and regional distribution; ground glass opacity (GGO), airspace consolidations, tree-in-bud opacities, centrilobular nodule, and bronchial wall thickening.

RESULTS: Among 403 patients, 76 patients were included (M:F = 42:34, mean 62.4 year; range 19~88 year). Most patients (n = 72/76, 94.7%) had underlying comorbidities; malignant diseases (n = 25), diabetes (n = 15), transplantation recipients (kidney; n = 8, heart; n = 3, liver; n = 2), chronic obstructive lung diseases (n = 5), and other chronic medical diseases (n = 14). Predominant CT features were segmental distributed ill-defined centrilobular nodules (57.9%), GGO (68.4%) and consolidation (38.2%). Other findings were tree-in-bud opacities (7.9%) and bronchial wall thickening (7.9%). Four patients without underlying comorbidity showed similar CT findings with comorbidity group (GGO, centrilobular nodules, and consolidation).

CONCLUSION: Most patients with abnormal CT features had underlying medical problems, suggesting immune-compromized host conditions. The most common CT findings of hMPV pneumonia are multifocal distributed ill-defined centrilobular nodules with airspace-filling pattern, GGO and consolidation.

CLINICAL RELEVANCE/APPLICATION: This study assessed characteristic CT findings of hMPV infection. Clinico-radiological correlation is useful for management and prediction of clinical outcome in patients with hMPV pneumonia.