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Title: MDCT differences between cardiac edema, viral pneumonia and ARDS

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Body: Purpose: Acute respiratory distress syndrome (ARDS) is a type of severe, acute lung dysfunction affecting all or most of both lungs that occurs as a result of illness or injury. The main radiological problem is to see differences with cardiac edema or viral pneumonia. Main purpose is to show possibilities of MDCT in detection of important differences. Methods: We examined 356 patients with ARDS, 656 with viral pneumonia and 456 with cardiac edema. Patients were examined by 16/64 MDCT using virtual bronchoscopy, perfusion and pulmonary angiography. There were 194 male and 162 female patients from 13 to 82 years with ARDS; 303 male and 353 female with viral pneumonia, 9 to 54 years; 201 male and 255 female, 54 to 76 years old. Results: ARDS was caused by injury in 204 cases and with acute illness in 148 cases. 6 cases were without known cause, probably drug abuse. Patients were with hypoxia, PF ratio was less than 200 and all had bilateral x-ray changes. The usual diagnostic approach is to perform standard x-ray of the lung but in cases of bilateral pneumonia it is impossible to determine changes from ARDS and from pneumonia; also if patients have cardiac problems in history it is not necessary that they do not have ARDS. There are 2 major radiological differences: first is quality of alveolar fluid and second is condition of alveolar wall. Also important differences are in condition of airways and blood vessels. Different diagnosis was made in 18.9% of patients. Conclusion: Fast diagnoses for patients in critical care units are vital to patient life. MDCT with virtual bronchoscopy, perfusion and pulmonary angiography can give us fast answer and prediction. MDCT can be performed in patients with mechanical ventilation.