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Title: The incremental value of chest computed tomography on chest radiographs in the diagnosis of pneumonia in bedridden patients

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Body: Objectives: to assess the diagnostic value of chest radiographs for the diagnosis of pneumonia in old senile bedridden patients and comparing it with the non-enhanced high resolution chest tomography(CT). Materials and methods: We prospectively evaluated bedridden patients hospitalized with moderate to high clinical probability of pneumonia. Chest radiographs were interpreted in a blind fashion by 3 observers and classified as definite, normal or uncertain for pneumonia. Chest CT was done within 12 hours of the chest radiograph. We applied Bayesian analysis to assess the accuracy of chest radiographs in the diagnosis of pneumonia. Results: In 24 month period, 60 patients (36 females and 24 males) were evaluated. Their chest radiographs were interpreted as positive, uncertain or negative for pneumonia in 15(25%), 14(23%) and 31(52%) patients, respectively, while CT confirmed pneumonia in 12(80%), 10(71%) and 11(35%). The sensitivity of the chest radiography to diagnose pneumonia was 65%, the specificity was 83%, the positive and negative predictive values were 83%, and 65% respectively, while the overall accuracy was 70%(95% confidence interval, 50% to 79%). Conclusion: In bedridden patients with suspected pneumonia, regular chest radiography could not rule out the diagnosis and so chest CT scanning should be done to provide valuable diagnostic information.