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Short Communication

Study on the Variations of Image Density and Morphologic Index of Multidetector Row Computed Tomography for Healthy Lungs

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ABSTRACT
We selected several image density and morphologic indices to establish CAD for prediction of biopsy in lung diseases. Our results suggested that significant difference was not observed in the image density indices between bilateral lungs at each slice level. Our own designed image indices may be reliable parameters in the establishment of CAD system and pathologic diagnosis for lung disease.
Key words: CAD, Density index, Histogram, Frequency, Entropy.

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INTRODUCTION

Inspite of advances in radio-diagnostic investigations, the variations of image density and morphologic index assessed by Multidetector Row Computed Tomography (MDCT) for lungs in healthy individuals has not been studied. This is essential for improvement in investigations related to pulmonary diseases.[1-6]

MATERIALS AND METHODS

We analyzed the CT findings of 40 males and 40 females without respiratory symptoms and abnormal X-ray findings.

The findings of target group was disaggregated by sex and analyzed.

And we selected the image density and morphologic index and compare the index results of the bilateral healthy lungs at the level of vertebrae thoracales from No. 1 to 8.

Each image density indices were evaluated when setting range of HU from 0 to 5000 instead of -1000 to 4000.[7-10]

RESULTS

According to the results of study on image density of healthy lungs at the level of vertebrae thoracales from No. 1 to 8, the significant deviation was observed in the histogram range at the level of vertebrae thoracales from No. 4 to 8, though not observed in the density grade, ratio of high frequency and low frequency, average frequency, average histogram and entropy.

And morphologic indices of healthy lungs at the level of vertebrae thoracales from No. 1 to 8, the significant deviation was observed in the area-round ratio, aspect ratio, equivdiameter, solidity and second moment at the level of vertebrae thoracales from No. 4 to 8, though not observed from No. 1 to 3

CONCLUSION

We could note that the comparison of image density and morphologic indices of healthy and ill lungs at the appropriate slice level would be one of key approaches to anticipate the pathological diagnosis regarding the values of the indices vary from disease to disease.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of Interest.

ABBREVIATIONS

MDCT: Multidetector Row Computed Tomography; **CAD:** Computer Aid Diagnosis; **CT:** Computed Tomography.

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