

عنوان مقاله:

CT Role in the Assessment of Existence of Breast Cancerous Cells

محل انتشار:

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خلاصه مقاله:

Background: Application of CT- scanning image information and radiation physical characteristics of the biomaterials are two measurable assays for presenting modified cells. Objective: This study presented that CT number (HU) and linear attenuation coefficient contain useful information which can be determined during usual CT scanning for the prediction of breast cancerous cells existence based on hemoglobin concentration. Material and Methods: This experimental study used breast phantom containing major and minor vessels with diameters of 10 and 5 mm, respectively. The major vessels are filled by water, fat, hemoglobin (Hb) as a normal and 4× concentration of hemoglobin (4×Hb) as a cancerous breast cells, then scanned by single slice CT (GE, Hi Speed) 120 kVp, 100 mA for the determination of linear attenuation coefficient (μ_L). Results: The CT numbers were for water (-7 to +7 HU), Hb (22 ± 6 HU) and 4×Hb (80 ± 4 HU). The difference between Hb and 4×Hb was significant ($p < 0.000$). Minimum μ_L was 0.119 ± 0.00680 cm⁻¹ for fat and maximum was 0.1449 ± 0.00794 cm⁻¹ for 4×Hb. Conclusion: The study of CT number and linear attenuation coefficient of different concentration of Hb provides a possibility for early predicting of breast (cancerous cells existence (4×Hb

کلمات کلیدی:

Tomography, X-Ray Computed, HU Measurements, Blood, Body Fluids

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