

عنوان مقاله:

Comparing IDREAM as an Iterative Reconstruction Algorithm against In Filtered Back Projection in Computed Tomography

محل انتشار:

مجله فیزیک پزشکی ایران, دوره 17, شماره 3 (سال: 1399)

تعداد صفحات اصل مقاله: 5

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خلاصه مقاله:

Introduction: Recent studies of Computed Tomography (CT) conducted on patient dose reduction have recommended using an iterative reconstruction algorithm and mA (mili-Ampere) dose modulation. The current study aimed to evaluate Iterative Dose Reduction Algorithm (IDREAM) as an iterative reconstruction algorithm. Material and Methods: Two CT protocols (i.e., A: 120 KV /150 mA, FBP; B: 120KV/ (20-150) mAs, IDREAM) to scan water and acrylic phantoms. A number of 40 patients were assigned to two CT protocols (C: n=20, 120KV/160 ±10 mAs, FBP and D: n=20, 120 KV/ (30-150) mAs, IDREAM), the two groups (C and D) were then referred to abdomen and pelvis CT scan (Sinovision, insitum 16) with contrast. Image quality parameters, dose calculations were measured for all groups (i.e., A, B, C, and D). Results: Group B had a highly significant SNR with less significant noise ($P < 0.05$), in comparison with group A. In addition, uniformity was markedly higher for group B ($P < 0.05$) in water phantom and insignificantly different ($P > 0.05$) in acrylic phantom, as compared to group A. CTDIvol (A: 13.94 mGy ; B: 6.91 mGy , $P < 0.05$) and DLP (A:501.76 mGy.cm ; B :248.88 mGy.cm). Noise and SNR were significantly different ($P < 0.05$) in group D against C. CTDIvol (C: 30.3±5.2 mGy ; D : 15.4 ±2.7 mGy, $P < 0.05$) , DLP (C:544±100 mGy.cm; D :272.3±50.3 mGy.cm , $P < 0.05$) and the effective dose (C:8.1±1.5 mSv; D :4.08±0.75 mSv, $P < 0.05$) Conclusion: The .results of the present study were indicative of the feasibility of IDREAM as an iterative reconstruction algorithm

کلمات کلیدی:

Computed Tomography, FBP, IDREAM, image noise, Image Quality, Iterative Algorithm SNR

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