عنوان مقاله:

Evaluation of Metal Artifact Reduction software in Computed Tomography

محل انتشار:

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نویسندگان:

Eslam Maamoun - *Medical Imaging and Nuclear Medicine Department, Kundiawa Genaral Hospital, Papua New Guinea*

mohamad abdel aziz - *depagtment of biophysics-faculty of science -cairo universty-cairo-egypt*

خلاصه مقاله:

Introduction: The image quality of computed tomography (CT) can be seriously lowered by metal implants of patients. These implants are known to exert a significant impact on diagnostic accuracy due to artifacts. The current study aimed to assess the usefulness of Metal Artifact Reduction (MAR) software in the reduction of metal artifacts, in comparison to iterative reconstruction algorithm (IDREAM). Material and Methods: Water phantom with raw chicken leg underwent CT scan (Sinovision, Insitum 16) before (reference group (Gp ref) and after metal implantation: ((GPA (IDREAM without MAR) and GPB(IDREAM with MAR)). A total number of 30 patients [GP1 (instrumented spine (n=15)), GP2 (Brain clips (n=15))] underwent CT scan (Sinovision ,Insitum 16). GP1 and GP2 were reconstructed using two procedures including IDREAM without MAR vs. 2: IDREAM with MAR. All images were evaluated using subjective and quantitative assessment. Results: In subjective image quality assessment, the scores of MAR images were higher than IDREAM images ($p < 0.05$) as indicated by four radiologists. The absolute CT difference (ΔCT) and Artifact index (AI) demonstrated that MAR appeared to be superior for the reduction of metal artifacts ($p < 0.05$). Conclusion: As evidenced by the obtained results, MAR software can be efficiently used for metal artifact reduction in computed tomography (instrumental spine and brain clips).

کلمات کلیدی:

Computed Tomography, Evaluation, Image Quality, Implants Sinovision, Metal Artifact Reduction Software

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