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Modulo per la sottomissione abstract di ricerca CLINICA

Titolo (massimo **15 parole**)

Software versus manual pediatric protocol optimization in chest CT: preliminary phantom dose and image quality

Autori (cognome e iniziali, es: Grassi L.)

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Testo (massimo **250 parole**, preferibilmente in italiano (accettato anche in inglese), suddiviso in Introduzione, *Metodi*, *Risultati*, *Conclusioni* e *Finanziamento*

The aim of this study was to compare software automated versus radiologist manual CT protocols optimization strategies by using a CT phantom with different acquisition parameters and iterative reconstruction (IR) levels in order to maintain high image quality while decreasing dose and image noise.
A CATPHAN CT phantom underwent simulated pediatric chest CT scans using both automated and manual parameters optimization approaches performed by a radiologist.
Phantom was scanned within different protocols varying kV, mAs, pitch, IR.
The subjective and objective image qualities were assessed by both radiologists and software.
Computed tomography dose index (CTDI) and dose-length product (DLP) values were collected and analysed.
Equivalent dose to organ at risk (OAR) was assessed with a Monte Carlo system using a digital phantom simulating a six year old pediatric patient.
Dose to OAR, CTDIvol and DLP were substantially lower (90%,58% and 32% respectively) adopting a manual approach, maintaining a good subjective image quality as demonstrated by a human visual scoring test evaluation on images.
Through CT acquisitions, linearity and resolution were constant while image noise (mean -6.4, standard deviation 10.1) and uniformity (mean -6.4, standard deviation 10.1,) varied between scans, as observed by 3 experienced radiologists by visual score analysis.
Iterative reconstruction was associated with a further dose reduction using level 3 (max 6) in order to avoid texture effect.
In a simulated pediatric chest CT study, radiologist guided acquisition resulted the best choice in terms of optimal dose-image quality ratio while maintaining good image quality.

Visto superiore (prego indicare Nome e Cognome del superiore)

Stefano Presilla

Criteri per sottomissione Abstract:
NO Case report
NO Abstract senza nessun risultato
VISTO da un superiore

Invio Abstract