

Accepted Manuscript

Title: Image based simulation of the low dose computed tomography images suggests 13 mAs 120 kV suitability for non-syndromic craniosynostosis diagnosis without iterative reconstruction algorithms

Authors: Arijanda Neverauskiene, Mazena Maciusovic, Marius Burkanas, Birute Griciene, Linas Petkevicius, Linas Zaleckas, Algirdas Tamosiunas, Jonas Venius

PII: S0720-048X(18)30210-9
DOI: <https://doi.org/10.1016/j.ejrad.2018.06.005>
Reference: EURR 8215

To appear in: *European Journal of Radiology*

Received date: 3-11-2017
Revised date: 3-5-2018
Accepted date: 10-6-2018

Please cite this article as: Neverauskiene A, Maciusovic M, Burkanas M, Griciene B, Petkevicius L, Zaleckas L, Tamosiunas A, Venius J, Image based simulation of the low dose computed tomography images suggests 13 mAs 120 kV suitability for non-syndromic craniosynostosis diagnosis without iterative reconstruction algorithms, *European Journal of Radiology* (2018), <https://doi.org/10.1016/j.ejrad.2018.06.005>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Image based simulation of the low dose computed tomography images suggests 13 mAs 120 kV suitability for non-syndromic craniosynostosis diagnosis without iterative reconstruction algorithms

Arijanda Neverauskiene^{a,b,*}, Mazena Maciusovic^c, Marius Burkanas^c, Birute Grieciene^b, Linas Petkevicius^d, Linas Zaleckas^e, Algirdas Tamosiunas^b, Jonas Venius^{c,f}

^a Department of Radiology, Childrens Hospital, Affiliate of Vilnius University Hospital Santaros Klinikos, Vilnius

^b Department of Radiology, Nuclear Medicine and Medical Physics, Institute of Biomedical Sciences of the Faculty of Medicine of Vilnius University, Vilnius

^c Medical Physics Department, National Cancer Institute, Vilnius

^d Institute of Computer Science, Vilnius University, Vilnius

^e Centre of Oral and Maxillofacial Surgery of Vilnius University Hospital Zalgiris clinic, Institute of Dentistry of the Faculty of Medicine of Vilnius University, Vilnius

^f Biomedical physics laboratory, National Cancer Institute, Vilnius

*Department of Radiology, Childrens Hospital, Affiliate of Vilnius University Hospital Santaros Klinikos, Santariskiu Str. 7, LT-08406, Vilnius, Lithuania. Phone: +370 5 2720606, Fax: +370 5 2720282 Email address: arijanda.neverauskiene@vuvl.lt (Arijanda Neverauskiene)

ABSTRACT

Objectives: The aim of this study was to simulate low dose paediatric head CT images with different noise levels corresponding to various tube current time product values and assess simulated image suitability in non-syndromic craniosynostosis diagnostics.

Method: 29 paediatric patients who underwent head CT examinations for cranial deformity were enrolled in the study. The low dose CT images, corresponding to 120 kV and 120 mAs, 100 mAs, 80 mAs, 50 mAs and 13 mAs settings, were synthesised by adding noise to original data. Three researchers evaluated suitability for diagnostics of original and simulated images by using questionnaire assessing image suitability.

Download English Version:

<https://daneshyari.com/en/article/8822571>

Download Persian Version:

<https://daneshyari.com/article/8822571>

[Daneshyari.com](https://daneshyari.com)