

SHORT ABSTRACT

Dose Optimization in CT Examinations of the Brain

Timo De Bondt

Keywords: computed tomography; brain; dose management; radiation dose; protocol optimization

Over the last decades, technical advances resulted in an increased use of Computed Tomography (CT) scans, and an associated elevation in population radiation dose. To protect the patient from radiation related detrimental effects, it is important to optimize protocols according to the ALARA principle. A brief review of mechanisms of radiation damage to the human body will be given, along with the most recent guidelines and diagnostic reference levels.

Protocol optimization is especially important for the paediatric population because of their increased radiosensitivity. Unfortunately, because of large variability in this population, and the fact that it only represents a small portion of the workload, standardizing these CT

procedures is a challenge. Results of a multicentre study on this topic will be shared and discussed.

Recently, the advent of dose management software packages has facilitated the management of ionizing radiation in daily practice. This will be illustrated by examples from our own five-year experience in the department of radiology of the Antwerp University Hospital. These software systems enable easy data collection and analysis, to support changes in CT protocols, with the aim of complying with existing and upcoming legislation.

Competing Interests

Timo De Bondt is a consultant for GE Healthcare.

How to cite this article: De Bondt, T 2017 Dose Optimization in CT Examinations of the Brain. *Journal of the Belgian Society of Radiology*, 101(S1): 7, pp. 1–2, DOI: <https://doi.org/10.5334/jbr-btr.1414>

Published: 18 November 2017

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