

Contrast Media Effects and Radiation Dose Assessment in Contrast Enhanced Computed Tomography

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Abstract : Background: Contrast-enhanced computed tomography (CE-CT) is a technique that uses contrast media to improve image quality and diagnostic accuracy. It is a widely used imaging modality in medical diagnostics, offering high-resolution images for accurate diagnosis. However, concerns regarding the potential adverse effects of contrast media and radiation dose exposure have prompted ongoing investigation and assessment. It is important to assess the effects of contrast media and radiation dose in CE-CT procedures. Objective: This study aims to assess the effects of contrast media and radiation dose in contrast-enhanced computed tomography (CECT) procedures. Methods: A comprehensive review of literature was conducted to identify studies related to contrast media effects and radiation dose assessment in CECT. Relevant data, including location, type of research, objective, method, findings, conclusion, authors, and year of publications, were extracted, analyzed, and reported. Results: The findings revealed that several studies have investigated the impacts of contrast media and radiation doses in CECT procedures, with iodinated contrast agents being the most commonly employed. Adverse effects associated with contrast media administration were reported, including allergic reactions, nephrotoxicity, and thyroid dysfunction, albeit at relatively low incidence rates. Additionally, radiation dose levels varied depending on the imaging protocol and anatomical region scanned. Efforts to minimize radiation exposure through optimization techniques were evident across studies. Conclusion: Contrast-enhanced computed tomography (CECT) remains an invaluable tool in medical imaging; however, careful consideration of contrast media effects and radiation dose exposure is imperative. Healthcare practitioners should weigh the diagnostic benefits against potential risks, employing strategies to mitigate adverse effects and optimize radiation dose levels for patient safety and effective diagnosis. Further research is warranted to enhance the understanding and management of contrast media effects and radiation dose optimization in CECT procedures.

Keywords : CT, contrast media effects, radiation dose, effect of radiation

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