# Evaluation of arterial phase images with 100 kVp in multiphase abdominal CT scan

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## Abstract

Objectives: CT scan of abdomen is usually performed in 120-140 kVp will increases the radiation dose many fold. The purpose of the study was to assess image quality with low kVp in arterial phase of examination of multiphasic abdominal CT study.

Methods: A prospective cross-sectional study was done in 206 participants of age 18 to 88 years undergoing multiphase CT studies of the abdomen. The arterial phase study of limited region of abdomen was obtained with 100 kVp. The portovenous phase scan with standard protocol was obtained (120kVp). All other scanning parameters were kept same for two phases. Images were rated on 5 point scale (1-worst, 2-Suboptimal, 3-adequate, 4-very good, 5-excellent) based on visualization of boundaries, anatomical details of the organs and visualization of noise and artifact by two radiologists. Statistical analysis was done with Wilcoxon's signed ranks test and descriptive analysis.

Results: Overall the image quality of portovenous phase was significantly better ($p<0.005$) than low kVp arterial phase. Image quality score correlated best with abdominal circumference in standard dose technique ($r=0.54$) and patient weight in reduced dose technique ($r=0.44$). Arterial phase scanning had acceptable image quality score for patient weight of <60 kg, AC <80cm and BMI<25 kg/m2. The CTDIvol was 7.71 with reduced kVp protocol and 20.02 with standard resulting significant reduction in radiation dose of about 51%.

Conclusion: The image quality of arterial phase images with 100 kVp tube potential is acceptable in thin and average built patients.

Key words: Artery phase images, CT Scan, Radiology

***Biography:***

Niranjan Thapa has completed his MSc in Medical Imaging Technology at the age of 25 years from Tribhuvan University, Maharajgunj Medical Campus. He is the Radiological Technologist at TU Teaching Hospital. He has published more than 5 papers in reputed journals and has been published more than 4 Text book related to radiography.

***Speaker Publications:***

1. "Evaluation of Hounsfield Unit in adult brain structures by CT"
2. "Evaluation of image quality in chest radiographs".

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