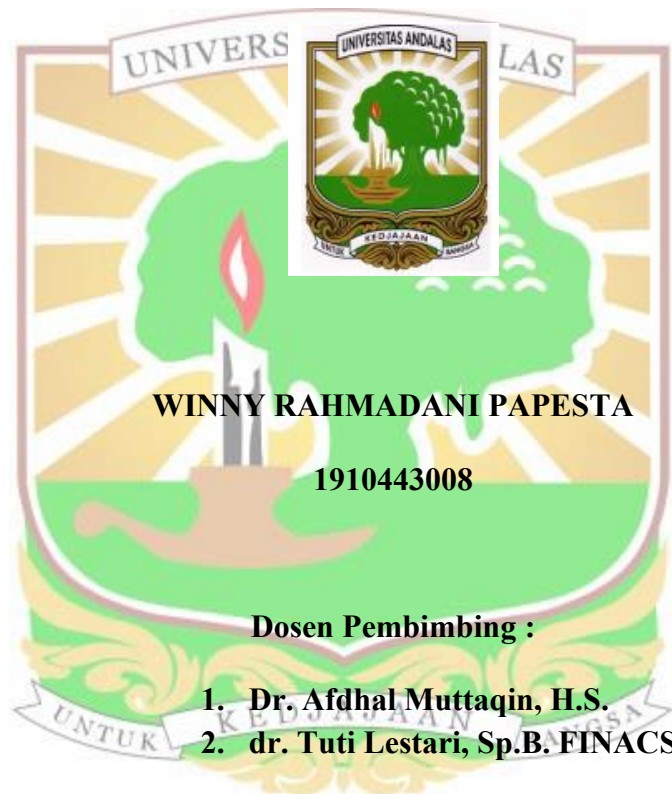


**OPTIMASI FAKTOR EKSPOSI DAN KUALITAS CITRA PADA
PEMERIKSAAN ABDOMEN PROYEKSI *ANTERIOR-POSTERIOR*
MENGUNAKAN *COMPUTED RADIOGRAPHY***

SKRIPSI



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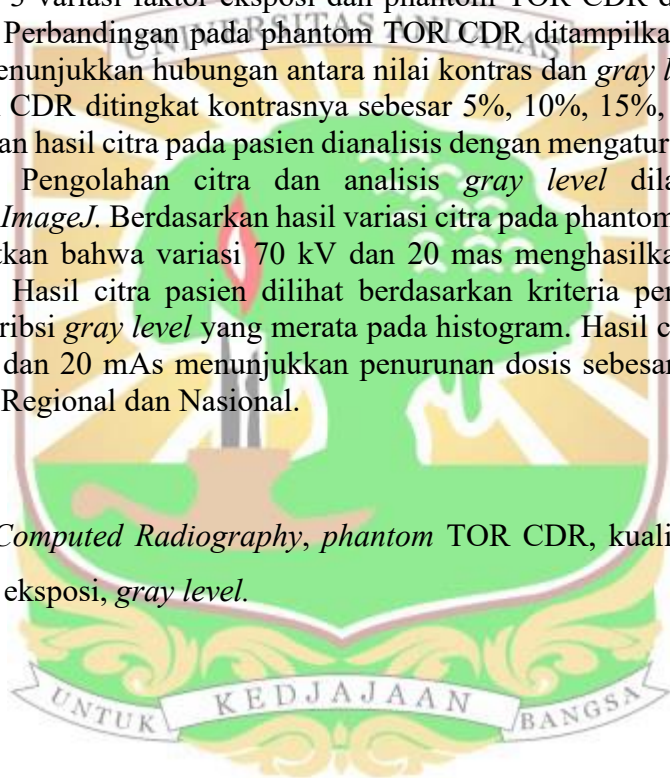
2024

OPTIMASI FAKTOR EKSPOSI DAN KUALITAS CITRA PADA PEMERIKSAAN ABDOMEN *ANTERIOR-POSTERIOR* MENGGUNAKAN *COMPUTED RADIOGRAPHY*

ABSTRAK

Telah dilakukan penelitian mengenai optimasi faktor eksposi dan kualitas citra pada pemeriksaan abdomen proyeksi *anterior-posterior* menggunakan *computed radiography*. Tujuan penelitian ini untuk mendapatkan nilai faktor eksposi yang optimal dan kualitas citra yang baik pada pemeriksaan abdomen serta mendapatkan nilai *Entrance Surface Air Kerma* (ESAK) yang tidak melebihi dari nilai Tingkat Panduan Diagnostik (TPD) Regional dan Nasional. Penelitian ini dilakukan pada pasien dengan 3 variasi faktor eksposi dan phantom TOR CDR dengan 5 variasi faktor ekposi. Perbandingan pada phantom TOR CDR ditampilkan dalam bentuk grafik yang menunjukkan hubungan antara nilai kontras dan *gray level*. Hasil citra *phantom* TOR CDR ditingkat kontrasnya sebesar 5%, 10%, 15%, 20%, 25%, dan 30%. Sedangkan hasil citra pada pasien dianalisis dengan mengatur nilai *brightness* dan *contrast*. Pengolahan citra dan analisis *gray level* dilakukan dengan menggunakan *ImageJ*. Berdasarkan hasil variasi citra pada phantom TOR CDR dan pasien didapatkan bahwa variasi 70 kV dan 20 mas menghasilkan kualitas citra yang optimal. Hasil citra pasien dilihat berdasarkan kriteria pemeriksaan yang bagus dan distribusi *gray level* yang merata pada histogram. Hasil citra pasien pada variasi 70 kV dan 20 mAs menunjukkan penurunan dosis sebesar 49% dan 54% terhadap TPD Regional dan Nasional.

Kata kunci : *Computed Radiography*, *phantom* TOR CDR, kualitas citra, faktor eksposi, *gray level*.



OPTIMIZATION OF EXPOSURE FACTORS AND IMAGE QUALITY IN ANTERIOR-POSTERIOR ABDOMEN EXAMINATION USING *COMPUTED RADIOGRAPHY*

ABSTRACT

Research has been conducted on the optimization of exposure factors and image quality in anterior-posterior projection abdominal examinations using computed radiography. The purpose of this study was to obtain the optimal value of the exposure factor and good image quality in the abdominal examination and obtain the *Entrance Surface Air Kerma* (ESAK) value that does not exceed the Regional and National TPD values. This study was conducted on patients with 3 variations of exposure factor and TOR CDR phantom with 5 variations of exposure factor. The comparison on the TOR CDR phantom is displayed in the form of a graph showing the relationship between contrast value and gray level. The results of the TOR CDR phantom image were increased in contrast by 5%, 10%, 15%, 20%, 25%, and 30%, while the image results on the patient were analyzed by adjusting the brightness and contrast values. Image processing and *gray level* analysis were performed using *ImageJ*. Based on the results of image variations on the TOR CDR phantom and patient, it was found that variations of 70 kV and 20 mAs produced optimal image quality. The results of the patient's image are seen based on good examination criteria and an even distribution of gray levels on the histogram. The results of patient images at 70 kV and 20 mAs variations show a dose reduction of 49% and 54% against Regional and National TPD.

Keywords: Computed Radiography, TOR CDR phantom, image quality, exposure factor, gray level.

