

Protective Effect of thyroid shield (AKTIF EP 316) on the absorbed dose of thyroid Gland in panoramic radiography

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Abstract

Background and Aim: Protecting of thyroid gland during panoramic radiography with shielding is not recommended in routine procedures regarding to induction of artifact. In this study, the effect of thyroid protecting shield (AKTIF EP 316) was investigated on thyroid dose of patients visiting a private clinic in Tehran in 2014-2015

Materials and Methods: In this clinical trial study 20 men with similar height, weight and age were selected among patients whom prescribed panoramic radiography. The dosimeters (TLDs) were placed on the front and back side of shield and radiography was performed with similar conditions (MA=10, KVP=72-76, 18 s time) using a SOREDEX machine model CRANEX-D and done for every 10 patients with similar series of dosimeters. Then the TLDs were read and data's were evaluated by Fischer exact test and T- test.

Result: The absorbed dose of thyroid gland when the dosimeters mounted on the front side of the shield was 0.0353 ± 0.03 mGY, while the absorbed dose was 0.0316 ± 0.01 mGY when dosimeters mounted on the backside of the shield. This shows a 10.4 % reduction which is statistically significant based on the T-test ($p < 0.002$).

Conclusion: The use of the thyroid protecting shield is strongly recommended due to ALARA rule and significant effect on reducing the thyroid gland absorbed dose during panoramic radiography.

Keywords: *Thyroid gland, Thyroid shield, Panoramic Radiography.*