

INTERNATIONAL CONFERENCE ON

# DENTISTRY AND INTEGRATED MEDICINE

MAY 07-08, 2018 TOKYO, JAPAN

## CBCT Dosimetry For Endodontic Procedures

Arthur D. Goren and Iryna Branets

New York University College of Dentistry, USA

**Background:** No studies have been done to evaluate radiation exposure to a 30 year old female CIRS phantom using OSL dot dosimetry utilizing three dimensional imaging for endodontic purposes.

**Methods:** An anthropomorphic phantom corresponding to a 30 year old female was used for all exposures. CBCT scans were taken on a Sirona Orthophos SL machine and a Morita 3D Accuitomo machine. The preset endodontic settings for maxillary anterior, premolar and molar were used for the Sirona machine and for the Morita CBCT the field of view selected was to image the anterior maxilla and the maxillary first molar. Dosimetry was performed using optically stimulated luminescent (OSL) dosimeters. The effective radiation dose was calculated for the organs of the head and neck. Organ fractions irradiated were determined from ICRP-89. Overall effective doses were calculated in micro-Sieverts for the results and were based on the ICRP-103 tissue weighting factors.

**Results:** The effective doses measured with the Morita CBCT were significantly less when compared to those taken with the Sirona CBCT. The highest organ dose exposures were in the salivary glands, oral mucosa, and extrathoracic airway. The differences between the CBCTs in the dosimetry was due to differences in the field of view and tube current settings.

**Conclusion:** This was the first study to evaluate radiation exposure to a female CIRS phantom using OSL dot dosimetry using three dimensional imaging for endodontic purposes. Restricting the field of view and selective tube current allows CBCT imaging to be used for endodontics following the ALARA principle.

[ag153@nyu.edu](mailto:ag153@nyu.edu)