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Effect of decreasing electric potential difference (kVp) of cone beam computed tomography machine on the accuracy of implant assessment linear measurements and orthodontic angular measurementsSally Mansour Abd ElHady¹, Fouad A M², Fahim D¹, Abelsamad AM¹, Dahaba M M¹ and ElSerougy M M¹¹Cairo University, Egypt²Modern University of technology and information, Egypt

Purpose: To assess the diagnostic accuracy of Cone Beam Computed Tomography (CBCT) using different electric potential difference, in the assesment of linear and angular measurements used in different clinical dentistry applications. Decreasing electric potential difference will reduce the radiation dose to more than half of its value.

Methodology: 23 skulls with mandibles were used with gutta percha markers for 12 different linear measurements and 2 angles were measured for each skull. All the skulls were imaged by CBCT with 60, 80, 90 kVp, while other imaging parameters were fixed. Three radiology specialists examined the scans.

Results: There was a statistically significant agreement between CBCT driven maxillary and mandibular, linear and angular measurements using 60, 80 as well as 90kVp and real measurements. Excellent inter-observer and intra-observer agreement was obtained. The lowest interobserver agreement was that for zygomatic angle using 60 kVp.

Conclusion: Maxillary and mandibular linear and angular measurements driven from CBCT images using 60, 80, 90 kVp are accurate and reproducible for maxillofacial applications. Decreasing electric potential difference (kVp) setting to 60 kVp will not affect the accuracy of driven maxillary and mandibular angular measurements.

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