The accuracy of linear tomography in mandibular width determination in superior border of mandibular canal

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Abstract

Background and Aim:

Finding an accurate and inexpensive method in measurement of bone width for determination of implant size is critical. Linear tomography is a cost effective method and there is no accurate finding about accuracy of linear tomography in evaluation of mandibular wide .The purpose of this study was to determine the accuracy of linear tomography in estimation of mandibular width.

Materials and Methods:

In this diagnostic study (estimation of one method), 23 sites of four dry mandibles were selected and marked at the crest with a metal ball markers. After linear tomography in these sites, the width of mandible in the superior border of inferior alveolar canal was measured. The mandibles were then sectioned. The Pearson's rank order correlation coefficient between linear tomography and real values was determined. Then with estimation of mean absolute differences by magnification factor, the percentages of errors in ±1mm error limits were determined. The regression equation was written for better determination of agreement rate between radiographic and real values. The percentages of errors in ±1 mm error limits were determined.

Results:

The Pearson's rank order correlation coefficient between the linear tomography and real values was 0.813($P<0.0001$). The mean absolute differences between the mandibular width in tomographic sections and real values was 0.3 mm (SD=1.13) and 56.5% of width measurements were within the ±1mm error limits. By the resulting linear regression equation 51.8% of tomographic values were located within the ±1mm error limits.

Conclusion: Linear tomography in evaluation of mandibular width should be used more cautiously.

Keywords: Tomography, Mandible, Implant

***Manuscript submitted: July** 2010, Revised and acceptance **Dec** 2010*

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