INVESTIGATING OF DIFFERENCES IN THE MANDIBULAR INFERIOR CORTICAL THICHNESS ON DIGITAL PANORAMIC IMAGE IN WOMEN AT DIFFERENT AGE GROUPS

A thesis

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Abstract

Background:

Panoramic images provide the dental clinician with a survey of anatomy of the jaws. Recent studies suggest that mandibular cortical thickness on panoramic images may be useful in identifying women with low bone mineral density.Panoramic radiographic measurements are considered as indicator of bone turnover. Changes in the thickness of mandibular inferior cortex can be attributed to many factors.

Aims of the study:

The most important aim was to correlate differences in the thickness of mandibular inferior cortex in women with the age, menopausal status and menopausal age, number of pregnancies, history of backache and marital status using digital panoramic image.

Materials and methods:

A total sample of 199 apparently healthy Iraqi women attending the Dental Teaching Hospital in Al- Mosul city were considered. Each woman was subjected to dental panoramic image. Their ages ranged between (20 – 72) years.

The total sample were collected during the period from November 2006 to April 2007 .The information from each woman was recorded in special case sheet.

Calibration of digital dental panoramic x-ray machine was done by using a dry skull, while calibration of the image was done by using known length stainless steel wire fixed in bite piece to be within the center of focal trough anteriorly.

The digital dental panoramic image was taken and the thickness of mandibular inferior cortex in the right and left sides were measured and recorded using digital panoramic image measurement tools.

The measurements of the researcher were compared with those of another specialist in dental radiology on the same images and inter and intra- examiner calibration were done on 20 randomly selected images.

All results were obtained under the run of the statistical software MINITAB release 11.12 32 Bit with R-square and t- test.

Results:

It has been found that age explains 38.4% of the total variability of the changes in mean thickness of mandibular inferior cortex. The results of the one-way analysis of variance test indicated that elder age groups have highly significantly lower mean thickness of mandibular inferior cortex than younger age groups, which emphasize the fact that this is an age related phenomenon (highly significant inverse relation), while number of pregnancies explains 10.2% of the total variability of the changes in mean thickness of mandibular inferior cortex (highly significant inverse relation).

The results of the two-sample t-test indicated that women with history of backache are experience more changes in the mean thickness of mandibular inferior cortex than other women (highly significant relation).

For the menopausal age our study show that 21.4% of the total variability of the changes in mean thickness of mandibular inferior cortex related to menopausal age (highly significant inverse relation). Postmenopausal women are found to have highly significantly lower mean thickness of mandibular inferior cortex than premenopausal women.

The result of our study indicates that married women have highly significant lower mean thickness of mandibular inferior cortex than single women.

Conclusions:

Because oral health is an integral part of general health, oral problems indigenous to the female population have to be addressed. Women have special oral health needs and considerations that men do not have. Hormonal fluctuations affect more than a woman's reproductive system. Puberty, menses, pregnancy, and menopause all influence a woman's oral health and the way in which dental professionals should approach her dental treatment. Therefore, factors like marital status, menopausal status and age, number of pregnancies, history of backache together with age, were considered in this study which has direct effect on mean thickness of mandibular inferior cortex in women.