THE VALUE OF DIGITAL DENTAL PANORAMIC TOMOGRAPHY IN THE IDENTIFICATION OF COMMON CAROTID ARTERY CACIFICATION AMONG IRAQI SAMPLE AT RISK OF CEREBROVASCULAR ACCIDENT

A thesis

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Abstract

Back ground: Cerebrovascular accident is considered as the third leading cause of death in most developing countries and 60% of the patients who survive a stroke suffer a long-term physical and psychological disability, and as stroke may be preventable (but the major challenge is to find effective methods of detection of stroke-prone patients).

Aims of study: This study was undertaken to determine the prevalence of carotid artery calcification in stroke prone patients who have metabolic, vascular, vascular and metabolic diseases, as well as to evaluate the relationship between the carotid artery calcification and the risk factors which are related to vascular disease using digital dental panoramic tomography.

Materials and methods: Digital dental panoramic tomography of 200 Iraqi individuals (40-80) years old of both sexes divided into two groups; control and study group who were attending College of Dentistry, University of Mosul.

The total sample was collected during the period from September /2006 to March /2007.

The information from each patient were recorded in a special case sheet, the patients were subjected to clinical examination and biochemical investigations as well as calculating their body mass index.

The digital dental panoramic tomography was taken to all sample and the following parameters were observed using the Dimaxis Pro / Classic soft ware version 3.2.1.

Presence or absence of any radiopacity in the soft tissue region at the bifurcation of common carotid artery at the level of third, fourth and fifth cervical vertebrae and their inter vertebral spaces on both sides of the patient's neck were recorded.

Number and location of these radiopacities if it present were also recorded.

The readings of the researcher were compared with those of the supervisor and inter and intra examiner. This was done through   assessing the image of 10% of the sample.

SPSS program for statistical analysis was used to calculate the result with Chi-square test. Inter group comparison showed a significant relationship between studies groups (vascular, metabolic and vascular-metabolic) and control group regarding the followings: positive observation, number and location of common carotid artery atheroma.

Forward stepwise logistic regression analysis was used to determine the risk factors in developing common carotid artery atheroma in the right & left sides of the neck.

Results: The results suggested that left sided common carotid artery atheroma could be a risk factor in patients with angina, hyperlipidemia, myocardial infarction, transient ischemic attack, diabetes mellitus, age (over 55 years) , and high body mass index; and a right sided common carotid artery atheroma could be a risk factor in patients with myocardial infarction and to a lesser extent angina, hyperlipidemia, hypertension & patients with high body mass index.

 The present data analysis demonstrates that there was a significant differences between study and control groups (generally) as well as between control group and each of study sub groups (vascular, metabolic and vascular- metabolic), regarding common carotid artery atheroma finding and non significant differences regarding number and vertebral location of the masses. On the other hand the present analysis demonstrates a significant relationship between right and left side calcification findings with vascular, metabolic, vascular-metabolic diseases, particularly hypertension, coronary artery diseases (angina, myocardial infarction),

transient ischemic attack, hyperlipidemia as well as obesity and body mass index classification. More over, left side calcification finding shows a significant relationship with age (over 55 years), diabetes mellitus and smoking. On the other hand number and vertebral location of carotid artery calcification on the right and left sides demonstrate a significant relationship between carotid artery calcification with body mass index classification, and only the right vertebral location exhibited a significant relationship with age over 55 years, while the number of carotid artery calcification in the left side exhibited a significant relationship with smoking and hyperlipidemia. The study also revealed anon significant relationship between common carotid artery atheroma with the (right and left) sides and with the gender.

Conclusions: From the results of the present investigation it is crucial for the dentists to evaluate carefully the panoramic radiographs of neurologically asymptomatic patients in the cervical region for the presence of common carotid artery atheromas. Dentists can play an important role in early detection of common carotid artery atheroma which carries a potential risk for the development of cerebrovascular accident and they can be a life through early diagnosis and referral of common carotid artery atheroma positive patients to check themselves & seek the necessary medical treatment.