The Value of Lateral Cephalometric Image in Sex Identification

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ABSTRACT

Background: Determination of sex and estimation of stature from the skeleton is vital to medicolegal investigations. Skull is composed of hard tissue and is the best preserved part of skeleton after death, hence, in many cases it is the only available part for forensic examination. Lateral cephalogram is ideal for the skull examination as it gives details of various anatomical points in a single radiograph, also it easily provides architectural and morphological details of skull superstructures and intra-cranial details for comparisons. However, in explosions, war fares and other mass disasters like aircraft crash, identification and sex determination are not easy.

The aims of the study: This study was undertaken to evaluate the accuracy of digital cephalometric system as quick, easy and reproducible supplement tool in sex determination in Iraqi samples in different age range using certain linear and angular craniofacial measurements in predicting sex.

Material and method: The sample in the current study consisted of 113of true lateral cephalometric radiographs for adults with age range from 22-43 years old(51 males,62 females), the following measurements have been taken with the aid of computer program "**AutoCAD 2007" :**

1) The maximum length of skull distance.
2) The frontal sinus height distance.
3) The length of cranial base.
4) Upper facial height distance .
5) Total facial height distance .
6) The linear distance between Basion and Anterior nasal spine.
7) The perpendicular distance between the mastoid and (Sella –Nasion) plane.
8) The perpendicular distance between the mastoid and Frankfort plane.

9) The angle between Basion, Nasion and Mentom.
10) The angle between Mentom, Nasion and Anterior nasal spine.
11) The angle between Sella, Nasion and Mentom.

Results: The various parameters measured for males and females when compared are statistically significantly different. All cranio-cephalometric measurements gave overall predictive accuracy of sex determination by discriminant analysis (86.7%). The stepwise selection method gave overall predictive accuracy of sex determination by discriminant analysis (85.8%). Age showed no statistical difference among the studied age range except for the distance from Mastoid to Frankfort plane.

Conclusion: The lateral cephalometric measurements of craniofacial bones are useful to support sex determination of Iraqi population in forensic radiographic medicine .