

**ABSTRACT**

**Comparative Study of Maxillary Sinus Volume Measurement Using Post Processing CT Scan Examination Manual and Software Volume Head MSCT Technique in Sex Identification**

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Maxillary sinus is the largest of the paranasal sinuses with a specific characteristics and differences in form among each individuals. Utilization of Computed Tomography for identification has a goal to quantify the limit area of maxillary sinus in raw data multiplanar reconstruction to obtain the value of the diameter and volume. The aim of this study is to determine the difference of maxillary sinus volume results using manual and automatic measurement technique for gender determination. This research using observational analytics with a retrospective approach.

One hundred and fourteen samples were selected, consisting of 57 male and 57 female (18-70 years old) with no pathological abnormalities in the maxillary sinus area. The measurement method were performed by manual and automatic techniques on each randomly selected sample to obtain the value of the diameter and volume of maxillary sinus. Data analysis were performed using paired t-test method to analyze the difference of both techniques in male and female respondents. The average gender prediction rate of manual and automatic techniques is 60% and 50,6% respectively.

There was a significant difference between the measurement results of maxillary sinus cavity volume in both techniques with significance value less than 0,05. Therefore, the best technique to quantify the volume of maxillary sinus is automatic method with a relative degree of uncertainty in the right and left maxillary sinuses of male is 26,3% and 26% respectively and 35% and 34,2% respectively in female.

**Keyword:** Maxillary sinus volume, MSCT, manual technique, automatic technique, gender determination.

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