"AGE ESTIMATION BASED ON VARIATION IN THE PULP CAVITY OF INCISORS - A RADIOGRAPHIC STUDY"

By

Dr. GINJUPALLY UDAY

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Under the guidance of

DR. P. RAMASWAMY, M.D.S

DEPARTMENT OF ORAL MEDICINE AND RADIOLOGY

ST. JOSEPH DENTAL COLLEGE AND HOSPITAL

Duggirala, Eluru- 534003, Andhra Pradesh

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ABSTRACT

Background: Age identification of living or dead individuals is an important aspect of forensic sciences. The natural teeth are the most durable organs in the bodies of a vertebrate which undergoes age-related physiological changes throughout life and shows the best resistance against postmortem alterations caused by humidity, temperature, microbial activities, and mechanical forces.

Aim and objective: To estimate the age of the patients belonging to the age 15-65 yrs, attending the department of Oral Medicine and Radiology, St Joseph dental college and hospital, Eluru based on radiographic evaluation of pulp cavity width of maxillary central and lateral incisors. The objectives are to derive cubic regression formula for estimation of age using pulp cavity width and to determine the correlation between the pulp cavity width and age.

Materials and methods: The study group comprises of 200 subjects of age 15-65yrs. Intraoral periapical radiographs of maxillary incisors are taken for all subjects using conventional paralleling angle technique and pulp cavity width is measured at cervical and middle third using digital vernier caliper. The recorded data is subjected for statistical analysis. Regression analysis was carried out to obtain the estimated age using pulp cavity width.

Results: Student t-test showed statistical significant difference in cervical and middle third pulpal widths in males and females. A negative linear relationship was obtained between age and pulp cavity width in males and females. Strong correlation was

observed with middle third of root canal when compared to cervical third of pulp cavity in both males and females. Cubic regression analysis was done and regression formulas were obtained. The mean real age of males and females are 40.83 years and 41.17 years respectively. The mean estimated ages are 40.53 years and 40.96 years in males and females respectively. The mean age differences were found to be 0.30 years in males and 0.21 years in females.

Interpretation & Conclusion: Our study revealed a negative linear relationship between age and pulp cavity width. Accordingly, regression formulas were derived for males and females, satisfying the objectives of the study. The estimated age showed an average difference of 0.30 years in males and 0.21 years in females, supporting the applicability of regression formula in the adult Eluru population.

Key words: Age estimation; Pulp cavity width; Maxillary incisors; Regression.