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AGE- AND CALCIUM DEFICIENCY-RELATED CHANGES IN CRANIAL CRANIOMETRIC PARAMETERS

Dr. ROHIT. K
Anatomy department,
Fergana Medical Institute of Public Health

Abstract. This study investigates the changes in cranial craniometric parameters depending on age and calcium deficiency. Approximately 150–200 subjects of different age groups were examined. Craniometric measurements were performed to assess skull dimensions, proportions, and structural characteristics. In addition, biochemical indicators related to calcium metabolism were analyzed. The results demonstrated that calcium deficiency significantly affects bone density and cranial structure, leading to measurable alterations in craniometric parameters. Age-related changes were also observed, with progressive modifications in skull size and proportions. Individuals with calcium deficiency showed more pronounced deviations compared to those with normal calcium levels. The findings highlight the importance of adequate calcium intake for proper skeletal development and maintenance, as well as the relevance of craniometric analysis in identifying structural changes associated with metabolic disorders.

Key words; craniometry, skull, calcium deficiency, bone density, age-related changes

Annotatsiya. Mazkur tadqiqot bosh suyagi kraniometrik ko‘rsatkichlarining yosh va kalsiy yetishmovchiligiga bog‘liq holda o‘zgarishini o‘rganishga bag‘ishlangan. Tadqiqotda turli yosh guruhlariga mansub 150–200 nafar shaxs tekshirildi. Kraniometrik o‘lchovlar orqali bosh suyagining o‘lchamlari, nisbatlari va strukturaviy xususiyatlari baholandi. Natijalar kalsiy yetishmovchiligi suyak zichligiga va bosh suyagi tuzilishiga sezilarli ta’sir ko‘rsatishini aniqladi. Shuningdek, yoshga bog‘liq o‘zgarishlar ham kuzatildi. Kalsiy yetishmovchiligi bo‘lgan shaxslarda o‘zgarishlar yanada yaqqol namoyon bo‘ldi.

Kalit so‘zlar; kraniometriya, bosh suyagi, kalsiy yetishmovchiligi, suyak zichligi, yoshga bog‘liq o‘zgarishlar

Аннотация. Данное исследование посвящено изучению изменений краниометрических показателей черепа в зависимости от возраста и дефицита кальция. В исследовании приняли участие 150–200 человек различных возрастных групп. Были проведены краниометрические измерения и анализ показателей кальциевого обмена.

Ключевые слова: краниометрия, череп, дефицит кальция, плотность костей, возрастные изменения

INTRODUCTION. The human skull undergoes continuous changes throughout life, influenced by genetic, environmental, and nutritional factors. Among these, calcium plays a crucial role in bone formation and maintenance. Calcium deficiency can lead to decreased bone density and structural alterations, which may affect cranial morphology. Understanding how age and calcium levels influence craniometric parameters is important for both clinical and anthropological studies.

LITERATURE REVIEW Previous studies have demonstrated that calcium deficiency is associated with various skeletal abnormalities, including reduced bone mineral density and increased fragility. Craniometric analysis has been widely used to assess skull morphology and detect developmental and pathological changes. Researchers have found that nutritional deficiencies, particularly calcium, can significantly influence cranial growth and structure. Age-

related changes in skull dimensions have also been documented, reflecting normal developmental and degenerative processes.

RESEARCH METHODOLOGY. The study included 150–200 participants from different age groups. Subjects were divided based on age and calcium status. Craniometric measurements were performed using standard anthropometric tools to assess skull dimensions, including length, width, and height. Biochemical tests were conducted to evaluate calcium levels in the body. Data were analyzed using statistical methods to identify correlations between age, calcium deficiency, and craniometric changes.

ANALYSIS AND RESULTS. The results showed that both age and calcium deficiency significantly influence cranial measurements. Individuals with calcium deficiency exhibited reduced bone density and slight deformities in skull structure. Age-related differences were observed in skull dimensions, with gradual changes in proportions over time. The combination of aging and calcium deficiency resulted in more pronounced structural alterations. Statistical analysis confirmed a strong correlation between calcium levels and craniometric parameters.

CONCLUSION AND RECOMMENDATIONS. The study confirms that calcium deficiency and age are important factors affecting cranial morphology. Adequate calcium intake is essential for maintaining normal skull structure and preventing bone-related disorders. Regular monitoring of calcium levels and early intervention are recommended, especially in vulnerable populations. Further research is needed to explore the long-term effects of calcium deficiency on cranial development.

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