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A Craniometric Study of South Indian Adult Dry Skulls

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Abstract
The study was conducted for determine the cranial indices in adult in adult skull. The total 125 human adult dry skulls were used for this study. The results were maximum cranial index was 82.53mm and 71.20mm was minimum. The mean cranial index was 82.53mm and 71.20mm was minimum. The cranial index was 77.69±2.39mm, in males it was 79.98±2.16mm and 75.35±2.56mm in females. The knowledge of cranial index was very useful for anthropologist and neurosurgeons.
Key words *- Craniometry, Cranial Index, Skulls.*

INTRODUCTION

Craniometry is the scientific measurement of the skull useful for anthropometry and forensic practice[1]. Cranial index variations between and with in population have been attributed to a complex interaction between genetic and environmental factors[2]. The bone material is very important after enamel of teeth for anthropo and forensic practice. The morphometric and non-morphometric studies of human skulls are very helpful for identification of the sex and age by anthropologist and forensic practice. Cranial dimensions and Cranial indices are considered as simplest and most efficient way to indicate facial differences[3].

Craniometry generally conducted by X-ray techniques but is closely related to anatomists and anthropologists[4]. Craniometry can be used to analyze evalution of human species in archeology[5]. Recent days CT and different Radio-imaging technique are most accepted as a standard protocol for clinical diagnosis and surgical treatment. The anatomical landmarks of skulls can be established by using various methods such as direct physical measurement, x-ray, 2D imaging technology and CT scan. It enables 3D reconstruction and accesses craniofacial morphometric data both ineer and outer anatomical landmark for the craniometric study[6,7]. Craniometry is very important in forensic practice where cranial remains are compared with existing photographs[8]. The present study conducted for measuring cranial index.

MATERIALS AND METHODS

125 dry adult human skulls constituted the material for the present study. The skulls belong to the Department of Anatomy, JJM Medical College, Davangere, Karnataka, India. Each was studied for the craniometric analysis.

RESULTS

The results were maximum cranial index was 82.53mm and 71.20mm was minimum. The mean cranial index was 82.53mm and 71.20mm was minimum. The cranial index was 77.69±2.39mm, in males it was 79.98±2.16mm and 75.35±2.56mm in females.

DISCUSSION

Craniometry reveals numerical values to certain features of the skull witch can be difficult to describe[9]. According to Williams et al the skulls are divided four types based on cranial index, types are as follows

- Dolicocephalic – Cranial Index less than 74.9mm
- Mesocephalic – Cranial Index between 75 to 79.9mm
- Brachycephalic – Cranial Index between 80 to 84.9
- Hyperbrachycephalic – Cranial Index 85 to 89.9

The author stated that the insignificant difference in the cranial indices of the male and female skulls confirms the less sexual dimorphism in humans as compared to other primates[8]. According to Odoquma et al the craniometry is very important to study of human growth variation in different races, for clinical diagnosis and treatment and craniomety is essential in the study of population dynamics of specially with respect to quantitative variables[10].

Seema et al in their study of 62 skulls the results were minimum cranial indices was 65.02mm and 87.11mm was maximum, while the mean value and standard deviation of all the skulls were 72.56 ± 3.12. The mean cranial indices for male was 72.54 ± 3.22mm and female skulls examined 72.06 ± 2.97mm[11]. Adejuwon SA et al in their study of 85 skulls, the minimum cranial index was 66.86mm and and maximum was 78.10mm, while the mean value and standard deviation was 72.54±2.33mm, the mean cranial index of male was 72.97±2.16mm and female was 71.72±2.48mm[12]. Jaysingh P et al in their study of 300 human skulls the mean cranial index was 74.35mm[13].

Kranioti et al in their study of 178 skulls the mean cranial length in was 181 mm ± 6.63 in male and 172.89 mm ± 6.48 in female[14]. Morant G M studied 32 Tibetian skulls measured cranial length, cranial breadth, cranial height, facial height and facial breadth, the mean cranial index was 75.25mm. Chaturvedi and Harneja in their study the mean cranial index was 70.75mm[15]. Dhall U study of normal 89 adult skulls of the North Indian 78 skulls were dolicocephalic, 10 mesocephalic and 01 brachycephalic[16]. Chaturvedi et al study results of mean cranial index was 70.75mm[3].

According to Sharma RN the cranial index in living is two units higher than cranial index which measured on dried human skulls, In Mongoloid race dolicocephaly is rare while brachycephaly is rare in Negroid race. Human knowledge of paleontology and available data suggest that early man was generally dolicocephalic. Brachycephaly developed later as a result of repeated mutation and various other factors[17]. Vishal and Pradeep study of 136 skulls of South Indian 77 were dolicocephalic[18]. Lobo S.W study of 267 Gurung community of Nepal, the mean cephalic index in male was 83.1mm and in female was 84.6mm[19]. Shah GV study of 500 medical students at B. J. Medical College, Ahmedabad. The mean cephalic index in male was 80.42mm and 81.20mm was in female, the mean cephalic index for total population was 80.81mm[20].

CONCLUSION

The results of our study was the most of skulls are belongs to Mesocephalic(Cranial Index between 75 to 79.9mm) type. The knowledge of cranial index is very helpful to anthropologists, forensic scientists.

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