Cephalic index: study in post graduate medical Students

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Abstract

Cephalic index is an important parameter for deciding the race and sex of an individual whose identity is unknown. In the present study we tried to work out Cephalic index in post graduate medical students of Maharashtra. 400 post graduate medical students were measured for head length and head breadth and cephalic index was worked out. Comparing previous records of cephalic index with recent work proves tendency towards "brachycephalisation" evidence of continuous growth of brain more in the lateral direction. The data collected by the authors will be of importance in anatomy, forensic medicine, anthropology and in genetics.

Key words: Cephalic index, head-length, head-breadth, anthropometry.

Introduction

Modern man is found of making comparison to prove his superiority over creatures. Measurements are the important tools for comparisons. Now a day so May references are available in this subject. This be speaks of validity available in this subjects. Cephalic index is a very useful anthropological to find out racial differences [1, 2]. It can also be utilized to find out sexual differences. That is how it is a role in forensic science, comparison of the changes in cepahlo-index between parents, off springs and siblings can give a clue to genetic transmission of inherited characters [3].

Material and Methods

For the present study 400 post graduate medical students (160 females and 240 males) were selected as subjects. All post graduates medical students are selected from various medical colleges from Maharashtra. The age ranged between the 25 to 30 yrs. The method used for assessment of the cephalic index is Hrdlicka's method [4]. The head length (greatest antero-posterior diameter) was measured with the help of spreading caliper from the Glabella to Inion. The head – breath was measured as the maximum transverse diameter between two fixed points [5]. All the measurements were taken with the subject sitting in chair, in relaxed condition and head in anatomical position

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Table 1. Incidence in various cephalic index.

Cephalic index	No. observed	Cephalic index	No. observed
70.01 to 71	3	81.01 to 82	26
71.01to 72	6	82.01 to 83	16
72.01 to 73	12	83.01 to 84	14
73.01 to 74	15	84.01 to 85	19
74.01 to 75	18	85.01 to 86	27
75.01 to 76	34	86.01 to 87	22
76.01 to 77	19	87.01 to 88	19
77.01 to 78	45	88.01 to 89	13
78.01 to 79	14	89.01 to 90	9
79.01 to 80	24	90.01 to 91	8
80.01 to 81	35	91.01 to 92	2

Table 2. Relationship of sex with cephalic index

Cephalic index	males	females	Cephalic index	males	females
70.01 to 71	3	-	81.01 to 82	10	6
71.01to 72	5	1	82.01 to 83	8	8
72.01 to 73	8	4	83.01 to 84	9	5
73.01 to 74	10	5	84.01 to 85	12	7
74.01 to 75	11	7	85.01 to 86	18	9
75.01 to 76	22	12	86.01 to 87	14	8
76.01 to 77	12	7	87.01 to 88	12	7
77.01 to 78	25	20	88.01 to 89	8	5
78.01 to 79	8	6	89.01 to 90	6	3
79.01 to 80	15	9	90.01 to 91	5	3
80.01 to 81	20	15	91.01 to 92	2	-

Table 3. Head length in males and females

Male	Male	Female	Female
Head length(cm)	No. observed	Head length(cm)	No. observed
14.01 to 15	-	14.01 to 15	4
15.01 to 16	15	15.01 to 16	24
16.01 to 17	32	16.01 to 17	68
17.01to 18	95	17.01to 18	28
18.01 to 19	48	18.01 to 19	12
19.01 to 20	33	19.01 to 20	4
20.01 to 21	17	20.01 to 21	-

Head breadth in males and females

Male	Male	Female	Female
Head breath (cm)	No. observed	Head breath (cm)	No. observed
12.01 to 13	12	12.01 to 13	6
13.01 to 14	66	13.01 to 14	28
14.01 to 15	122	14.01 to 15	72
15.01to 16	60	15.01to 16	34
16.01to 17	-	16.01to 17	-

Table 4. Cephalic index in different Indian groups (male)

Sr. no.	Race	Worker's	No. of cases	Mean cephalic index
1	Bhils	Bhargav and Kher (1960)	100	76.98
2	Barelas	Bhargav and Kher (1961)	100	79.80
3	K. Vangaja	Basu (1963)	100	79.50
4	Maharashtrian	Present series	400	80.30

Observations and results

From the collected data, statistics were analyzed and observations and results are presented in tabular form. The minimum cephalic index found to be 71.20 and maximum cephalic index is found to be 90.40. The mean cephalic index is 80.21.The mean cephalic index for male is 80.30 and female is 80.12.

In the males head length varies from 15.20 cm. to 20.50 cm. the mean head length being 17.85 cm. in females the head length varies from 14.26 cm. to 19.50 cm. the mean head length being 16.88 cm.

In the males head breath varies from 12.40 cm. to 15.80 cm. the mean head length being 14.10 cm. in females the head breath varies from 12.10 cm. to 15.20 cm. the mean head length being 13.65 cm.

Discussion

In the present study the mean cephalic index in both sexes is 80.21. ranging from the 71.20 to 90.40 cm. according to the Stewart's classification (1935) Maharashtrian populations can be mesati- cephalic[6]. In the present study, the mean cephalic index for males is 80.30 cm. & females is 80.12.c.m. according to the Bhargav & Kher (1960), it is 76.98 for Bhills and 79.80 for Barelas (1961). With the help of the above statistics, the sex as well as race of the deceased can be determined accurately with the head measurement. This knowledge can be of immerse important to anthropologist, anatomists as well as forensic science experts.

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