Craniofacial anthropometric norms of Malaysian Indians

WC Ngeow, ST Aljunid

Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Malaya, Kuala Lumpur - 50603, Malaysia

ABSTRACT

Objective: This study was done to establish the craniofacial anthropometric norms of the young adult (18-25 years) Malaysian Indian.

Materials and Methods: The study group consisted of convenient samples of 100 healthy volunteers, with equal number of female and male subjects who had no history of mixed racial-parentage. Twenty-two linear measurements were taken twice from 28 landmarks over six craniofacial regions. The methodology and evaluation of indices of the craniofacial region was adapted from Hajnis et al.

Results: The minimum measurements are always contributed by the female Indian except for the nose height (n-s), (left) eye fissure length (ex-en), upper vermillion height (ls-sto), and lower vermillion height (sto-b). There is a gender difference in all the measurements except the (left) eye fissure height (independent t-test; P < 0.05). The Malaysian Indians exhibit some North American White Caucasian (NAWC) features in all regions. The cephalic index indicates a brachycephalic or relatively short wide head with a tendency towards mesocephaly. From the low nasal index, the Malaysian Indian female have a nose that is narrow or leptorrhin similar to the NAWC. The lower value of the upper lip height to mouth width index in the Indian female indicates a relatively shorter upper lip height compared to the mouth width, also similar to the NAWC.

Conclusion: This study establishes the craniofacial anthropometric norms of the Malaysian Indian over 22 parameters. Male in general has a significantly higher measurement than female. The Malaysian Indians do exhibit some NAWC features.

Key words: Asia, craniofacial anthropometry, ethnic, measurement, Malaysian Indians

Anthropometry is the measurement of living subjects.[1] It has shown to be useful in orthodontic research[2] and also in reconstructive surgery where the soft tissue morphology of the face can be studied more reliably than comparisons from radiographs.[3] Anthropometric measurements of the head and face can be used together with cephalometry, CT scans, and MRI in preparation for a patient undergoing plastic and reconstructive surgery.[3]

This study seeks to expand scientific research to create hands-on value to surgeons treating the Indians, who mainly reside in India, but are also found residing in almost every country in the world. Together, they make up more than one billion of the world population. Malaysian Indians are no different than their counterpart Indians who live in the Indian subcontinent (India, Sri Lanka, Pakistan, Bangladesh) as they are the decedents of the people who originated from this part of the world.[4] While there has been a report on the craniofacial anthropometry in Indian newborns and infants,[5] there is currently no comprehensive data on the adult Indian. The most extensive data on the adult Indian so far has been reported by Farkas et al. where 14 measurements were recorded from various parts of the craniofacial complex.[6] Other studies on the Indians were concentrated more on specific regions of the craniofacial complex, such as the lip-nose region,[6,10] the ear,[10,11] and the orbital region.[10-14] Hence, it is the objective of this study to expand the baseline quantitative data of the Indians.

MATERIALS AND METHODS

The study group consisted of convenient samples of 100 young adult Indians residing in Malaysia, with equal number of female and male subjects. Their age ranged from 18 to 25 years. The participants who volunteered were generally healthy and exhibited no craniofacial abnormalities either acquired through road traffic accidents or other forms of trauma, congenital or developmental discrepancies and had no history of plastic or reconstructive surgery. Subjects of mixed parentage were excluded from this study. The data were collected between June and December of 2004.

Standard anthropometric instruments were used in this study. They were Mitutoyo digital sliding caliper, spreading