



Research and clinical papers

The intercanthal and interpupillary distances of three major ethnics in Malaysia

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Abstract: The normal range of intercanthal distance (ICD) and interpupillary distance (IPD) have only been reported in one minor ethnics group in Malaysia, the KadazanDusun. The aim of this study was to establish the ICD and IPD in the three major ethnic stocks in Malaysia, namely the Malays, Chinese and Indian. A total of 300 samples consisting of 50 adult males and 50 adult females of each ethnic stock were recruited from the campus of the University of Malaya. ICD was measured between the median angles of the palpebral fissures and IPD was measured between the midpoint of the pupils. Measurements were done twice to the nearest 0.5 mm by one researcher using a caliper and a metal ruler. A mean was taken out of these two measurements. If there were major discrepancies, a third reading was taken and two closest measurements were accepted. In ICD measurement, the means of all three group were highly significantly different from each other. The widest space between inner canthus was recorded in both sexes of the Chinese followed by the Malay and the narrowest space was noted in both sexes of the Indians. Gender variation is statistically significant where the males tend to have a wider intercanthal distance compared to females in all three ethnic groups. There was no significant difference between the mean IPD values among the three ethnics. However highly, statistically significant difference (independent t-test <0.001) was seen when comparing between the two sexes; the male generally had a wider IPD to the female in all the races. The ICD and IPD in this study samples were within the range of those in the KadazanDusun, whites, black and mixed populations.

Key words: Intercanthal distance, interpupillary distance, anthropometry, ethnic.

Introduction

Intercanthal distance (ICD) and interpupillary distance (IPD) are important measurements in the evaluation of congenital deformities, posttraumatic telecanthus and hypertelorism. The ICD is maintained by the medial canthal ligament, which connects the tarsal plates and palpebral structures to the medial orbital structures. Telecanthus is the term used to describe an increased distance between the median canthi.

Orbital hypertelorism is an increase in distance between the osseous orbits, with an associated lateral shift of the median canthal soft tissue resulting in the "secondary telecanthus", as described by DeMyer¹. Clinical measurement of hypertelorism has been subjected to controversy.

Many of the techniques are dependent on the measurement of the intercanthal distance and are inaccurate in the presence of primary telecanthus or median canthal soft tissue anomalies. Interpupillary distance is traditionally used in the clinical assessment of the bony orbits because it is the most readily identified anatomic marker and a satisfactory mode of evaluation with a cooperative patient.

The normal range of ICD and IPD has been investigated in adult Caucasian, Black or mixed population by various authors^{2,3,4}. In Malaysia, there is only one report on the ICD and IPD of a minor ethnic group, the KadazanDusun⁵, but not among the adults of the three major ethnics in Malaysia. Thus, the aim of this study was to establish the ICD and IPD in three major ethnic groups in Malaysia, namely the Malays, Chinese and Indians.