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Genetic Defects in Karnataka (India): Evidence and Factors

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ABSTRACT Five family pedigrees of people of Karnataka have been analysed to study the inheritance pattern of the genetic defects of missing left forearm, polydactyly, atrophied toes and nails and lobster claw deformity of hands and syndactylous feet, all possibly autosomal dominant genetic traits. These deformities affected eight persons among a total of 211 individuals represented by five pedigrees belonging to 18 generations. They are from Lingayat, Muslim, Valmiki and Brahmin communities inhabiting Dharwad city, Hosahalli Village in Dharwad district and Hubli city. The first pedigree siblings of the propositus with missing left forearm and the second and third pedigree siblings as well as the ancestors of the propositi with polydactylous hands were all phenotypically normal, indicating the variable expression of the gene for polydactyly. The fourth pedigree propositus with atrophied toes and nails might be attributed to a condition known as anonychia. The fifth pedigree proposita with cleft hands and syndactylous feet might have resulted due to autosomal dominant genes with variable expressivity and penetrance. The variable expression of genes for polydactyly and anonychia in the Karnataka females is predominantly a vertical type of inheritance rather than horizontal one. With the help of these pedigrees an attempt has been made to interpret the pattern of inheritance of the reported anomalies.

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