J Pediatr (Rio J). 2017;xxx(xx):xxx–xxx

Jornal de Pediatria
www.jped.com.br

SOCIEDADE BRASILEIRA DE PEDIATRIA

ORIGINAL ARTICLE

Determining the frequency of morphological characteristics in a sample of Brazilian children☆,☆☆

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Received 13 August 2016; accepted 20 December 2016

KEYWORDS
Anomalies;
Morphological;
Frequency;
Brazilian;
Children

Abstract

Objective: To establish the frequency of 82 morphological features in a sample of Brazilian children (between 3 and 13 years old), to understand the influence of age, gender, and ethnicity.
Methods: This was a cross-sectional study that evaluated 239 children with typical development (between 3 and 13 years old) regarding the presence of 82 morphological characteristics. A previously described protocol, based on the London Dysmorphology Database, was applied to evaluate the sample. This protocol was culturally adapted to Brazilian Portuguese.
Results: The frequency of 82 morphological characteristics was established in the sample; of 82 characteristics, 50% were considered morphological anomalies (frequency less than 4%). At least 25% of the sample presented more than one minor morphological anomaly. Age was shown to influence the frequency of the following morphological characteristics: widow's peak, prominent antihelix, prominent upper lip, irregular or crowded teeth, and clinodactyly, but had no influence on the frequency of minor morphological anomalies. Gender influenced dysplastic ears and attached earlobe, but had no influence on the frequency of minor morphological anomalies; ethnicity showed influence on camptodactyly and prominent antihelix. A statistically significant divergence was observed regarding 43 of the 73 morphological characteristics that could be compared with literature data (58.9%).

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☆ Please cite this article as: Perrone E, Zanolla TA, Fock RA, Perez AB, Brunoni D. Determining the frequency of morphological characteristics in a sample of Brazilian children. J Pediatr (Rio J). 2017. http://dx.doi.org/10.1016/j.jped.2016.12.010
☆☆ Study carried out at Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil.

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http://dx.doi.org/10.1016/j.jped.2016.12.010
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Conclusions: The study determined the frequency of 82 morphological characteristics in 239 children with typical development. Age was the variable that showed more influence on the frequency of morphological characteristics, and comparison with literature data showed that the frequency depends on variables such as age and ethnicity.
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PALAVRAS-CHAVE
Anomalias;
Morfológicas;
Frequência;
Brasileiras;
Crianças

Determinação de frequência de características morfológicas em uma amostra de crianças brasileiras

Resumo

Objetivo: Estabelecer a frequência de 82 características morfológicas em uma amostra de crianças brasileiras (entre 3 e 13 anos), para entender a influência da idade, sexo e etnia.
Métodos: Este foi um estudo transversal. Avaliamos 239 crianças com desenvolvimento típico (entre 3 e 13 anos), em relação à presença de 82 características morfológicas. Aplicamos um protocolo descrito anteriormente, baseado no *London Dysmorphology Database*, para avaliar nossa amostra. Este protocolo foi culturalmente adaptado ao português do Brasil.
Resultados: A frequência de 82 características morfológicas foi estabelecida em nossa amostra; de 82 características, 50% foram consideradas anomalias morfológicas (frequência inferior a 4%). Pelo menos 25% da nossa amostra apresentou mais de uma anomalia morfológica menor. A idade mostrou influência na frequência das seguintes características morfológicas: ''bico de viúva'', ''anti-hélice proeminente'', ''lábio superior proeminente'', ''dentes irregulares ou encavalados'' e ''clinodactilia'', mas não teve influência na frequência de anomalias morfológicas menores. O sexo mostrou influência nas seguintes características: ''orelhas displásicas'' e ''lóbulo da orelha aderente'', mas não teve influência na frequência de anomalias morfológicas menores; a etnia mostrou influência na ''camptodactilia'' e ''anti-hélice proeminente''. Houve divergência (estatisticamente significativa) em 43 características morfológicas de 73 que pudemos comparar com os dados da literatura (58,9%).
Conclusões: Estabelecemos a frequência de 82 características morfológicas em 239 crianças com desenvolvimento típico. A idade foi a variável que mostrou maior influência na frequência de características morfológicas e a comparação com dados da literatura mostrou que a frequência depende de variáveis como idade e etnia.
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Introduction

A morphological anomaly is a phenotype that is substantially different from that observed in a reference population.[1] This difference can be defined as the occurrence of the phenotypic characteristic in less than 2.5% of the population.[1] Some authors consider a statistical threshold of 4% for its definition.[2] Morphological anomalies are classified as major, when their presence results in medical consequences for the individual, and as minor, when they do not generate such effects.[2] The presence of minor morphological anomalies is considered an indicator of an abnormal embryological development process; therefore, studies have already indicated a correlation between minor morphological and major anomalies.[2–4]

Most studies on the frequency of morphological characteristics assessed newborns,[2–5] and it is known that morphological characteristics may change according to age.[6–11]

The most recent survey on the frequency of morphological characteristics was carried out by Merks et al. in a sample of Dutch children aged between 8 and 14 years.[12]

There are no data on the frequency of morphological characteristics in a sample of Brazilian children. Additionally, the definition of a minor morphological anomaly involves a statistical concept. Based on these assumptions, this study aimed to determine the frequency of 82 morphological characteristics in a sample of children with typical development and to verify the influence of the variables age, gender, and ethnicity on their frequency.

Methods

Sample selection

The selected children met the following inclusion criteria: age between 3 and 13 years and typical developmental

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