

Dermatoglyphic Patterns in Cystic Fibrosis Children

Atefeh Ezzati¹; Fereshteh Batoei²; Seyed-Ali Jafari³; Mohammad-Ali Kiyani³; Naser Mahdavi-Shahri⁴; Hamid Ahanchian³; Shahrzad Tehranian⁵; Hamid-Reza Kianifar^{3*}

¹Clinical Research Development Center, Ghaem Hospital, ²Mashhad University of Medical Sciences, ³Department of Pediatric Gastroenterology, ⁴Department of Biology, Faculty of Sciences, Ferdowsi Institute of Biotechnology, ⁵Nuclear Medicine Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Received: Oct 31, 2013; Accepted: Jul 04, 2014; First Online Available: Sep 12, 2014

Abstract

Objective: It is believed that fingerprints and palm patterns may represent genetically determined congenital abnormalities in Cystic Fibrosis (CF). The main idea of this paper was to determine differences of fingerprints and palm patterns in CF and normal children.

Methods: Forty-six CF children (27 males, 19 females) and 341 (113 males, 228 females) healthy individuals were recruited for this study. Fingerprint patterns, Total ridge count (TRC) of each finger, a-b ridge count, and atd angles of all participants were recorded. Asymmetry of the right and left hand for each value was determined and dissimilarity in fingerprint patterns between homologous fingers was compared using Chi-square analysis, Mann-Whitney U test and Fisher's exact test.

Findings: There were significant differences in the mean TRC of the right digit IV ($P=0.009$), left digit III ($P=0.02$), left digit IV ($P=0.03$), and left digit V ($P=0.03$). Furthermore, we found significant differences in right atd angle ($P=0.001$), left atd angle ($P=0.002$), right a-b ridge ($P=0.007$) and left a-b ridge ($P=0.001$). In contrast, we found no significant differences in atd angle asymmetry, a-b ridge count asymmetry and pattern dissimilarity score between both groups ($P>0.05$).

Conclusion: Dermatoglyphic characteristics could be used as a supplementary diagnostic method in CF children.

Iranian Journal of Pediatrics, Volume 24 (Number x), xxxx 2014, Pages:xxx

Key Words: Dermatoglyphics; Cystic fibrosis; Palm patterns; Fingerprints; Children

Introduction

Dermatoglyphics is the science of fingerprints and palm prints analysis which are constant throughout life^[1-3]. It is believed that they may represent different genetically determined congenital abnormalities. Several genes are involved in the inheritance of the dermal traits^[1]. Dermal ridges form in 6th week of gestation and reach their maximum size between 12th and 13th week. Historically, dermatoglyphics was a classical

model to consider the polygenic inheritance. Therefore, some specific dermatoglyphic patterns may be accompanied with different genetic abnormalities^[1,3].

Recent studies on dermatoglyphics have shown especial patterns in various congenital abnormalities such as skeletal maturation, diabetes type 1, schizophrenia, albinism, cleft lip and palate, rheumatoid arthritis, congenital spinal cord anomalies and Klinefelter syndrome^[4-10].

Cystic Fibrosis (CF) is a common fatal,

* Corresponding Author;

Address: Department of Pediatric Gastroenterology, Allergy Research Center, Ghaem Medical Center, Mashhad University of medical sciences, Mashhad, Iran
E-mail: kianifarhr@mums.ac.ir

© 2014 by Pediatrics Center of Excellence, Children's Medical Center, Tehran University of Medical Sciences, All rights reserved.