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THE PREVALENCE OF CONGENITAL MALFORMATIONS OF DERMATOGLYPHS OF NIGERIANS IN TERTIARY INSTITUTIONS IN RIVERS STATE.

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ABSTRACT

Background: Dermatoglyphic patterns of the digits of the hands are so significant and helpful in personal identification as no two individuals on earth have exactly same patterns, not even identical twins. However, there has been reports of malformations of these patterns presented in different forms in dfferent places such as Ridge Aplasia, Ridge Hypoplasia, Ridge Dissociation, Ridges-off-the-end, Ridges-off-the-end and ridge dissociation. **Aim:** The study was aimed at determining the incidence and prevalence of malformations of dermtoglyphs in Nigerian population using Tertary Institutions in Rivers State, Nigeria. This study would provide data on Nigerian subjects which will be relevant to researchers and at large the Sub-Saharan Africa. **Materials and Methods:** Non-experimental survey design. The selection and collection of required parameters relied on informed consent of volunteer subjects. The palm prints were obtained using print scanner. The study involved 3,900 subjects (2,455 males, 1,445 females). Data analysis: Data analysis was carried out using (IBM) SPSS Statistics version 22. **Results:** The results of this study are as presented in table 1 below: the percentage prevalence of all the patterns in the males and females are zero (0%) and the total prevalence of the patterns as well is zero (0%) for all the patterns under investigation. **Conclusion:** Dermatoglyphic malformations are not present in the Nigerian population as such could used as a clue to crime investgation whenever the nationalities of the suspects are been querried as aganst the tradition of Nigeria been seen to be first in the list of suspects to every crime.

KEYWORDS: Dermatoglyphs, Malformation, Ridge Hypoplasia, Ridge Dissociation.

INTRODUCTION

Dermatoglyphic patterns of the digits of the hands are so significant and helpful in personal identification as no too individuals on earth have exactly same patterns, not even identical twins. However, there has been reports of malformations of these patterns presented in different forms in dfferent places such as Ridge Aplasia, Ridge Hypoplasia, Ridge Dissociation, Ridges-off-the-end, Ridges-off-the-end and ridge dissociation.

Ridge Aplasia

This is a rare malformation consisting of congenital absence of epidermal ridges over the entire palmar and plantar surfaces. The palmar and interphalangeal flexion creases remain normal, but there is a great excess of very small creases on the skin, which appear as 'white lines' on the finger or palm prints. Congenital absence or unusual patterns of human dermatoglyphs (fingerprints) occur in several syndromes that are rare and poorly understood.[2] Affected individuals lacked dermatoglyphic patterns, sweat pores and ability to sweat in the volar areas of the fingertips, palms and soles.[3,8] In the digital age, personal identification by fingerprints (epidermal ridges) has become more frequent and is often required for biometric passports.[4,7]

Ridge Hypoplasia

In this condition the ridges are not absent but are reduced in height and this is often combined with a great excess of 'white lines' on the prints. It can be inherited as an autosomal dominant trait.[4,7] Congenital ridge hypoplasia in an individual is impossible to distinguish from the acquired condition of epidermal ridge atrophy. It is worth mentioning that ridge hypoplasia can occasionally be found on some palmar and plantar surfaces of congenitally deformed limbs.

Ridge Dissociation

In this condition, the ridges instead of running neatly in more or less parallel lines, are broken up into short ridges which tend to be curved and are completely disorganized.[4,7] It is most commonly found on the thumbs and in the region of the t triradius on the palm. Whether the t triradius is at its normal position near the wrist or at a t" position in the centre of the palm makes no difference; it is still the commonest site for ridge

dissociation on the palm. The distribution of ridge dissociation is absolutely characteristic on the fingers.

Ridges-off-the-end

This is now recognized to be part of the first purely dermatoglyphic syndrome to be discovered.[5] The first family with this syndrome showed 7 distinct traits inherited by single autosomal dominant gene.3 further families with this syndrome have since been studied by the author, with similar but not identical findings to the first family. By that the fingertip ridges, instead of running transversely, are vertical and run vertically off the end of the fingertips. Sometimes the ridges only show the 'tendency' to run off the end and these so-called 'cuspal' pattems are always radial rather than ulnar on the ring and little fingers and are often radial on other fingers too.

Ridges-off-the-end and ridge dissociation

There appear to be only two known examples of this rather unique combination. One was unwittingly published as 'ridge hypoplasia'.[5] The other is a member of a Welsh family with ridge dissociation studied by the author. Mild ridge dissociation was segregating as an autosomal dominant in this family, but one member (whose parents were first cousins) had complete ridge dissociation of his palms and soles, with a combination of ridge dissociation and ridges-off-the-end on all his fingertips.

There are lots of lteratures on dermatoglyphics in Nigeria population but none on malformations.[9,18]

Aim

The study was aimed at determining the incidence and prevalence of malformations of dermtoglyphs in Nigerian population using Tertary Institutions in Rivers State, Nigeria.

Statement of the Problem

There is paucity of information on the indigenous populations in Sub-Sahara Africa and especially in Nigerian subjects.

Significance of the Study

This study would provide data on Nigerian subjects which will be relevant to researchers and at large the Sub-Saharan Africa.

Scope of the Study

The study was focused on the palm prints of the subjects.

Study Area

The study was done only on Nigerian subjects in different Tertiary Institutions in Rivers State, Nigerian.

MATERIALS AND METHOD

Research Design

Non-experimental survey design. The palm and fingers of students in tertiary institutions in Rivers State (University of Port Harcourt, Rivers State University, University of Education, Rivers State School Health Technology, Rivers State School of Nursing, Ken Sarowiwa Polytechnics and Port Harcourt Polytechnics).

Selecton of Subjects

Ethical Clearance was obtained from the Ethics Committee of the University of Port Harcourt before the commencement of the study. The selection and collection of required parameters relied on informed consent of volunteer subjects. This was done by handing them a copy of the consent form which they all read and signed. The palm prints were obtained using print scanner (Hp G3110 Photo scanner). The study involved 3,900 (2,455 males, 1,445 females) subjects with 1,560 (790 males, 420 females) subjects from University of Port Harcourt, 1,170 (700 males, 470 females) subjects from Rivers State University, University of Education 585 (355 males, 230 females), Ken Sarowiwa Polytechnics 390 (250 males, 140 females), Port Harcourt Polytechnics (250 males, 100 females) Rivers State School of Nursing 97 (57 males, 40 females) and Rivers State School of Health Technology 98 (53 males, 45 females) who were recruited for the study.

Samplying Technique

The sampling technique used was purposeful sampling.

Data collection

The hands of the subjects were thoroughly washed with detergent and dried with a clean piece of clothe before their palm prints were captured. The palm print capture was done twice and the best print was taken for the study. The process was repeated for all the subjects and after which, the palm prints were observed and examined for the various ridge patterns under investigation. The results were recorded and computed for analysis.

Data analysis

Data analysis was carried out using (IBM) SPSS Statistics version 22.[17]

RESULTS

The results of this study are as presented in table 1 below: the percentage prevalence of all the patterns in the males and females are zero 0% (0/100) and the total prevalence of the patterns as well is zero 0% (0/100) for all the patterns under investigation.

Table 1: Incidence/ Prevalence of Malformations Dermatoglyphs.

PREVALENCE (DISTRIBUTION) OF CONGENITAL MALFORMATIONS OF DERMATOGLYPHS							
N/S	PATTERNS	MALES		FEMALES		TOTAL	
		Present	Absent	Present	Absent	Present	Absent
1	Ridge Hypoplasia	0%	100%	0%	100%	0%	100%
2	Ridge Dissociation	0%	100%	0%	100%	0%	100%
3	Ridge-of-the-end	0%	100%	0%	100%	0%	100%
4	Ridge-of-the-end & Dissociation	0%	100%	0%	100%	0%	100%
Total		0%	100%	0%	100%	0%	100%

P=0.05.

DISCUSSION

The prevalence (distribution) of the patterns showed that there was a zero prevalence for all the patterns and on comparison with z-test of proportionality was statistically significant for all the patterns.

In the Nigerian population, there were no reported cases of malformations of dermtoglyphs of any sort which conforms the fact that malformations of dermatoglyphs are rare conditions as have been mentioned and reported in previous works. The result of this study has been compared wth the results obtained n prevous wors and t agrees wth prevous findings.[1,6] It further suggests that there has not been reported any case of Immigration Delay Disease (IDD) due to the inability of the dermalogue to capture the fingerprint of Nigerians who emigrate in different embassies. This goes a lot far in telling that Nigerians could be exempted from crime investgation where the suspect has been predicted to have malformations of dermatoglphs using crime scene artifacts and evidence as against the common tradition of listing Nigerians as top in the list of suspects in crime incidence.

CONCLUSON

Dermatoglyphic malformations are not present in tertiary institutions in Rivers State and the Nigerian population by extension, as such could used as a clue to crime investigation whenever the nationalities of the suspects are been querried. This is against what seem to have become a tradition where Nigerians are considered to be first in the list of suspects in every crime when different nationalities investigated.

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