Short Communication

BIOMEDICAL Journal of Scientific & Technical Research

ISSN: 2574 -1241

DOI: 10.26717/BJSTR.2020.26.004375

C- Line Polymorphism in Human Populations

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ARTICLE INFO

Received: March 09, 2020

Published: March 13, 2020

Citation: Giovanni Floris. C- Line Polymorphism in Human Populations. Biomed J Sci & Tech Res 26(4)-2020. BJSTR. MS.ID.004375.

ABSTRACT

Data on C- line terminations as established by Plato [1] are reported for various populations with reference to the radial terminations/ulnar terminations ratio. The examined populations are heterogeneous and can be divided between those with a Radial type/Ulnar type ratio less than 1 and those with a ratio greater than 1.

Keywords: Dermatoglyphics; C Line; Human Populations

Short Communication

The study of dermatoglyphic, hereditary characteristics, which take on their final form in about the fourth month of intra-uterine life, is a great help towards a better knowledge of the different human populations Maxia, et al. [2]. Of the different dermatoglyphic characteristics we choose in this work the terminations of the C line .In 1970, Plato classified the terminations of the C line (the main line departing from c triradius at the base of the ring finger, Cummins, et al. [3] into four modal types:

a. Ulnar type (terminations 4, 5, 6, 7), toward the little finger and area proximal to it (hypothenar area);

b. Radial type (terminations 9, 10, 11, 12, 13), toward the thumb and thenar area:

c. Proximal type (terminations X, x, 8), the line folds on itself or is aborted;

d. Absence (O), ctriradius not present.

The Proximal type can be combined with Absence Bhattacharya [4] and the Radial type/Ulnar type ratio can be calculated to determine if this ratio is less than 1 (prevalence of ulnar terminations) or greater than 1 (prevalence of radial terminations).

Study Method

This note reports data on C line polymorphism in male populations (because more data are available) from the five continents (Asia is divided into West-Central Asia and South Asia), thus expanding the previously reported database Floris [5]. The data for Sardinians, Corsicans and Swiss (among European populations) were calculated by the author, while the other data were taken from the literature (see References), The literature data were reprocessed so as to have the raw data (and thus not all literature data were available). The data on Russian populations were taken from Heet [6] precisely via elaboration of the data reported in (Table VII). Only those regarding group 2 were omitted because the percentages do not add up. The Russian population is not included in the calculation of the global chi square.

Results

(Table 1) reports the values of C line terminations in the examined populations. A contingency table for the data on the totals of the six considered groups was calculated. The highly significant X^2 value highlights the heterogeneity of the populations. Examination of the Radial type/Ulnar type ratio shows that some populations have a value less than 1 (those of Africa, America, South Asia, Oceania) and others greater than 1 (those of Europe and West-Central Asia).

Conclusion

The results suggest that dermatoglyphics, once often used to characterize single human populations and then virtually abandoned in favour of other methods such as analysis of DNA and its polymorphisms Floris [7], can still be useful in characterizing populations. In particular, an intriguing fact that seems to emerge

from the data is the similarity between Africa, America and Oceania through South Asia and the separation of Europe and West-Central Asia. However, it would be important to fill in some gaps, such as the absence of data (at least analyzable and/or easily understood data) of this type for China and the few data for America, in order to achieve a more complete and clarifying result (without considering the many colleagues who have not answered to my request of data): At this point, for an eventual further confirmation of what has been said, I reported in (Table 2) the the data obtained by the angular transformation in radians of the percentage frequencies of the terminations of the C-line (for methodology and bibliography, Cosseddu, et al. [8]. The result is not very different from the dermatoglyphic considerations made earlier [9-40]. I can conclude by hoping that the study of dermatoglyphics (digital, palmar and plantar) does not fall into the oblivion to which it almost seems destined today, but that it may continue to have scientific validity [41-91].

Table 1: C-line terminations (%).

Africa						
Population	**Sample size**	**Groups**	**Ulnar**	**Radial**	**Proximal +Absence**	**R/U**
Malians	494	2	45.34	36.74	17.91	0.81
Moroccans	189	1	48.41	37.30	14.29	0.77
Nigerians	398	1	41.42	-	58.50	-
Tunisians	1852	1	45.11	36.52	18.37	0.81
Total	2933	5	44.86	31.65	23.49	0.71
America						
Population	**Sample size**	**Groups**	**Ulnar**	**Radial**	**Proximal+ Absence**	**R/U**
Argentines	143	4	52.10	22.03	25.87	0.42
Eskimos	73	1	50.68	30.14	19.18	0.62
Seminoles	61	1	47.54	27.05	25.41	0.57
Venezuelans	125	2	64.80	11.20	24.00	0.17
Total	402	8	55.10	20.90	24.00	0.38
South Asia						
Population	**Sample size**	**Groups**	**Ulnar**	**Radial**	**Proximal +Absence**	**R/U**
Indians	2368	15	46.77	39.63	13.60	0.85
Nepaleses	104	1	65.35	17.31	17.31	0.26
Total	2472	16	47.55	38.69	13.76	0.81\
West-Central Asia						
Population	**Sample size**	**Groups**	**Ulnar**	**Radial**	**Proximal +Absence**	**R/U**
Iraqis	71	1	35.21	39.44	25.35	1.12
Iranians	2200	3	35.22	46.30	18.48	1.31
Israelis	1010	1	29.50	57.63	12.87	1.95
Yemenis	106	1	39.69	33.00	27.40	0.83
Lebaneses	240	1	39.20	41.00	19.70	1.05
Turks	200	1	31.50	55.50	13.00	1.76
Total	3827	8	33.89	48.94	17.17	1.44
Europe						
Population	**Sample size**	**Groups**	**Ulnar**	**Radial**	**Proximal +Absence**	**R/U**
Albanians	517	2	40.23	46.62	13.15	1.16
Austrians	150	1	34.33	49.67	16.00	1.45
Basques	102	1	39.59	47.72	12.69	1.21
Bulgarians	1574	3	38.37	45.55	16.08	1.19
Corsicans	50	1	45.00	33.00	22.00	0.73
French	335	1	37.01	43.58	19.41	1.15
Greeks	289	2	34.40	46.30	19.29	1.35
Italians (without Sardinians)	670	6	41.79	39.48	18.73	0.94

Poles	2138	2	36.53	39.33	24.14	1.08
Sardinians	1000	1	41.70	36.85	21.45	0.88
Spaniards	1216	6	43.97	41.79	14.23	0.95
Swiss	28	1	42.86	33.93	23.21	0.79
Germans	1281	1	40.83	45.86	13.31	1.12
Russians Hungarians	5382 642	1 1	41.58 38.40	39.92 39.00	18.50 23.00	0.91.02
Total	15374	30	40.20	41.34	18.46	1.03
Oceania						
Population	**Sample size**	**Groups**	**Ulnar**	**Radial**	**Proximal +Absence**	**R/U**
Micronesians	1836	2	63.78	16.61	19.61	0.26
New Guineans	498	1	57.23	22.49	20.28	0.39
Polynesians	117	1	58.97	29.92	11.11	0.51
Total	2451	4	62.22	18.44	19.34	0.30

Note: X^2=891.47 d.f.=10 p<0.001

Table 2: Angular transformation in radians of the percentage frequencies.

	Europe	South Asia	West-Central Asia	America	Oceania
Africa	17.77	24.06	55.14	27.82	61.96
Europe	-	11.38	11.20	84.00	124.92
South Asia	-	-	35.14	156.64	210.96
West-Central Asia	-	-	-	67.52	86.99
America	-	-	-	-	10.33

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ISSN: 2574-1241

DOI: 10.26717/BJSTR.2020.26.004375

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