Palmar main line polymorphisms in cataracts

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Summary

The palm prints of patients with different types of cataract (total, nuclear, zonular, cortical and complicated) were analysed for main line terminations and compared with those of a random population. The cases were also grouped into congenital, juvenile and senile types for broader comparison.

The results showed significant variations for all the 4 main line terminations (D, C, B and A) in senile and cortical cataracts, while among other types of cataract, congenital cases differed significantly in D and A line, zonular in C and A line and nuclear in B and A line terminations compared with controls. A comparison of familial and isolated cases revealed significant differences for D and A line terminations only in cases of senile cataract. The main line terminations also indicated considerable sex-dependent heterogeneity among the diseased and control subjects.

The significance of the results obtained are discussed in terms of pleiotropic mechanisms leading to the formation of cataract.

Introduction

Terminations of palmar main lines—D, C, B and A give an idea about the transverse and vertical alignment of ridges across the palm. These have until now been studied to delineate the differences between populations. Studies on the polymorphisms of main lines in diseases seem to be lacking except for a few reports such as that by Eswariah and Bali (1977) for diabetes. There are reports on the dermatoglyphic patterns in retinoblastoma (François *et al.*, 1969; Vidal, Dameil and Funes, 1969) and cataract (Murty, 1973) which deal with characters other than the main line terminations.

The present authors studied the distribution of main line terminations in cases of cataract and compared them with those in a normal control group; they also studied the heterogeneity between various types of cataract. Cataracts have been selected for the study for 2 main reasons, namely, both lenticular and dermal tissues share a common

embryonic origin and are derived from the ectodermal layer during embryogenesis; and most of the lenticular structure is differentiated by the first trimester of fetal life while volar pads appear between 6–8 weeks of gestation followed by the ridge differentiation between the third and fourth fetal months. Therefore, an error in the genetic control of lens development is likely to be associated with a specific dermal ridge configuration.

Material and methods

Palm prints of 247 cataract patients reported at Sarojini Devi Eye Hospital and Institute of Ophthalmology, Hyderabad, were analysed for various dermatoglyphic patterns. Of these, information on palmar main line terminations was available for 206 cases (congenital, 67; juvenile, 30; senile, 109) which were analysed by the method of Cummins and Midlo (1943). Prints that lacked clarity were not included in the analysis. In cases of congenital cataract, prints were not taken of children below the age of 12 months. The termination of each main line was traced as illustrated in Fig. 1.

The cases were diagnosed for the specific type of cataract after slit lamp examination. Cases with suspected trauma, metabolic defects, diabetes, mental retardation, maternal infection during pregnancy and other associated ocular defects were eliminated from the study.

Detailed histories (including medical and genetic aspects) covering 2 to 5 generations were obtained, and revealed 40 cases with a positive family history, with the condition being present in first or second degree relatives. These 40 cases were classified as genetic in origin and were grouped separately as 'familial' cases while the remainder without any familial history were grouped as 'isolated' cases (Padma *et al.*, 1977). Of the 40 familial cases there were main line terminations in 36 cases, of which 14 were congenital; 7, juvenile; and 15, senile types. Information on parental phenotypes, incidence of the condition in sibs, etc. in the familial cases are provided in Table 1.

FIG. 1. Palm print showing the main lines (A, B, C, D) and their terminations.

A control group comprising 50 males (18 to 26 years) and 50 females (18 to 30 years) was also studied. The male controls were randomly selected from the inmates of the university hostels, while female controls constituted the normal mothers (selected randomly) of children suffering from diseases or defects other than ocular.

The sex distribution of the cases in the major groups of cataracts studied were as follows:

TABLE 2.

Type of cataract	Familial			Isolated		
	Males	Females	Total	Males	Females	Total
Congenital	7	7	14	33	20	53
Juvenile	5	2	7	11	12	23
Senile	8	7	15	33	61	94
Total	20	16	36	77	93	170

At the time of examination, the ages of congenital cataract cases ranged from a few days to 8 years. The diagnosis in children older than 3 years was based on (a) earlier medical history, (b) course of development of the cataract and (c) clinical picture as observed under slit lamp. Some of the cases were aphacic for one eye and were admitted to the hospital for surgery to the second eye. Cases which showed onset of cataract symptoms after 10 years but before 40 years of age were grouped as juvenile types, whereas cases which showed these after the age of 40 years were grouped as senile types.

The terminations of main lines in familial and in isolated cases were also compared. These details are given in Tables 3 to 6 for congenital, juvenile and senile cataracts only: the number of cases of 'other' cataracts studied was very small. While computing the χ^2 values, points of terminations

TABLE 1. Family information of the patients with different types of cataracts

Type of cataract studied	Parental phenotypes	History studied	Total progeny living +	No. affected Progeny	Other relatives	Probands with parental con-sanguinity
Congenital:						
Total	N × N	1	5	4	—	nil
	N × A	1	2	1	—	nil
Zonular	N × N	4	24	7	1	3
	N × A	1	1	1	—	nil
Lamellar	N × A	1	4	1	—	nil
Unclassified	N × N	4	18	10	—	4
	N × A	3	14	6	—	1
Juvenile:						
Total	N × A*	1	3	1	—	nil
Lamellar	N × N	1	7	2	—	nil
Complicated	N × A*	1	8	1	—	nil
	A* × A*	2	9	2	1	1
Unclassified	N × N	1	5	2	—	nil
	N × A*	1	6	1	—	nil
Senile						
Nuclear	N × N	1	10	2	—	nil
Cortical	N × N	10	60	24	3	3
	N × A	7	30	7	—	nil

A=affected, N=normal, +=includes propositus, *=senile cataract.

with low frequencies and those categorized as 'others' were not considered.

The patients and the controls showed no significant differences in their ethnic or caste distribution from the local population.

Results

D line terminations. Cataracts in general and especially the cortical, congenital and senile types, showed significant differences from controls for D line terminations. There was a decrease in terminations ending at the 9th position in the 3 types, an increase in terminations at the 11th position in the cortical and senile types, and a decrease in terminations ending at the 11th position in the congenital cases (Table 3). These observations reflect heterogeneity between the 3 types of cataract in the D line terminations.

C line terminations. Terminations of C line in zonular, cortical and senile cataracts differed

significantly from the controls (Table 4) owing mainly to a decrease in the frequency of C lines ending at the 7th position especially in the zonular type. There was also a similar decrease in terminations ending at the 9th position in cortical and senile cases. In general, C lines ended more frequently in all cataracts at positions other than the 5th, 7th and 9th.

B line terminations. Terminations of B lines in nuclear, cortical and senile cataracts differed significantly from those in controls. This was mainly due to a decrease of the terminations ending at the 5' position in the 3 cataract types and an increase in the terminations ending at the 7th position in nuclear and at the 9th position in cortical and senile types compared with controls (Table 5).

A line terminations. Terminations of A lines showed variations in all cataracts from controls (Table 6). The frequency of terminations ending at the 3rd

TABLE 3. Distribution of D line terminations in patients with cataract

		Points of terminations				Total	D v. C	χ^2	F v. I
		7	9	11	Other				
Type of cataract:									
Total	N	4	5	9	0	18	1.29		
	%	22.2	27.8	50.0	—		(3)		
Nuclear	N	3	3	13	1	20	5.89		
	%	15.0	15.0	65.0	5.0		(3)		
Zonular	N	6	9	13	0	28	1.33		
	%	21.4	32.1	46.4	—		(3)		
Cortical	N	41	32	93	16	182	22.43**		
	%	22.5	17.6	51.1	8.8		(3)		
Complicated	N	16	13	13	0	42	6.03		
	%	38.1	30.9	30.9	—		(3)		
Congenital (F)	N	12	8	7	1	28	—		
	%	42.9	28.6	25.0	3.6				
(I)	N	34	26	43	3	106	—		
	%	32.1	24.5	40.6	2.8				
(F+I)	N	46	34	50	4	134	7.83*	2.42	
	%	34.3	25.4	37.3	2.9		(3)	(2)	
Juvenile (F)	N	7	3	4	0	14	—		
	%	50.0	21.4	28.6	—				
(I)	N	12	16	18	0	46	—		
	%	26.1	34.8	39.1	—				
(F+I)	N	19	19	22	0	60	4.29	2.74	
	%	31.7	31.7	36.7	—		(3)	(2)	
Senile (F)	N	5	2	22	1	30	—		
	%	16.7	6.7	73.3	3.3				
(I)	N	47	37	89	15	188	—		
	%	25.0	19.7	47.3	7.9				
(F+I)	N	52	39	111	16	218	21.25**	6.97**	
	%	23.8	17.9	50.9	7.3		(3)	(2)	
Total (F)	N	24	13	33	2	72	—		
	%	33.3	18.1	45.8	2.8				
(I)	N	93	79	150	18	340	—		
	%	27.4	23.2	44.1	5.3				
(F+I)	N	117	92	183	20	412	13.96*	1.49	
	%	28.4	22.3	44.4	4.9		(3)	(2)	
Control	N	43	70	81	4	198	—		
	%	21.7	35.4	40.9	2.9				

N=number of palms studied, F=familial, I=isolated, D=disease, C=control, * $P<0.05$, ** $P<0.01$. Figures in parentheses are degrees of freedom.

TABLE 4. Distribution of C line terminations in patients with cataract

		5†	Points of terminations			Total	D v. C	χ^2	F v. I
			7	9	Others				
Type of cataract:	N	3	3	8	4	18	4.82		—
Total	%	16.7	16.7	44.4	22.2		(3)		
Nuclear	N	3	7	8	2	20	0.51		—
	%	15.0	35.0	40.0	10.0		(3)		
Zonular	N	5	3	13	7	28	11.11*		—
	%	17.9	10.7	46.4	25.0		(3)		
Cortical	N	31	51	66	34	182	13.76**		—
	%	17.0	28.0	36.3	18.7		(3)		
Complicated	N	11	6	20	5	42	6.94		—
	%	26.2	14.3	47.6	11.9		(3)		
Congenital (F)	N	9	8	7	4	28	—		—
	%	32.1	28.6	25.0	14.3				
(I)	N	18	23	50	15	106	—		—
	%	16.9	21.7	47.2	14.1				
(F+I)	N	27	31	57	19	134	7.25		5.57
	%	20.2	23.1	42.5	14.2		(3)		(2)
Juvenile (F)	N	2	2	6	4	14	—		—
	%	14.3	14.3	42.9	28.6				
(I)	N	9	8	25	4	46	—		—
	%	19.6	17.4	54.3	8.7				
(F+I)	N	11	10	31	8	60	6.38		0.01
	%	18.3	16.7	51.7	13.3		(3)		(2)
Senile (F)	N	5	6	16	3	30	—		—
	%	16.7	20.0	53.3	10.0				
(I)	N	34	54	67	33	188	—		—
	%	18.1	28.7	35.6	17.6				
(F+I)	N	39	60	83	36	218	11.03*		2.52
	%	17.9	27.5	38.1	16.5		(3)		(2)
Total (F)	N	16	16	29	11	72	—		—
	%	22.2	22.2	40.2	15.3				
(I)	N	61	85	142	52	340	—		—
	%	17.9	25.0	41.8	15.3				
(F+I)	N	77	101	171	63	412	11.94**		0.27
	%	18.7	24.5	41.5	15.3		(3)		(2)
Control	N	31	60	90	13	194	—		—
	%	15.9	30.9	46.4	6.7				

N=number of palms studied, F=familial, I=isolated, D=disease, C=control. * $P<0.05$, ** $P<0.01$. Figures in parenthesis are degrees of freedom. †Includes terminations ending at 5' and 5" positions.

position were strikingly less with a corresponding increase in the terminations ending at the 4th, 5' and 5" positions.

Main line terminations in familial and isolated cases. A comparison of familial and isolated cases showed significant differences in the terminations of D and A lines in senile cataracts alone (Tables 3 to 6). In congenital and juvenile cataracts, such differences were less striking; those found in senile cases were mainly due to a decrease in the terminations of D line endings at the 7th and 9th positions with a corresponding increase of terminations at the 11th position in the familial group compared with the isolated group (χ^2 6.97 2 d.f., $P<0.01$). Regarding the A line, there was a reduction in the terminations at the 3rd and 5' position and an increase at the 4th and 5" positions in familial senile cataracts

compared with isolated senile cataracts (χ^2 9.42 3 d.f., $P<0.05$).

Distribution of main line terminations according to sex. Some nonspecific variations between the sexes were observed in the terminations of main lines. The control group showed significant differences in the terminations of B lines ending at 5' position (higher in females) and 5" positions (higher in males) and in the terminations of A lines ending at almost all positions (Tables 9 and 10).

Significant sex differences were found in the congenital group (C line terminations, χ^2 12.53 3 d.f., $P<0.05$) and in the juvenile group (C line termination χ^2 9.61 3 d.f., $P<0.05$; A line termination χ^2 10.58 3 d.f., $P<0.05$). Sex variations were not observed in cases of senile cataract.

Comparison of line terminations for each sex in

TABLE 5. Distribution of B line terminations in patients with cataract

		5'	5"	Points of terminations		Others	Total	D v. C	χ^2	F v. I
				7	9					
Type of cataract:										
Total	N	2	5	10	0	1	18	5.91		—
	%	11.1	27.8	55.6	—	5.6		(4)		
Nuclear	N	2	4	12	0	2	20	18.69**		—
	%	10.0	20.0	60.0	—	10.0		(4)		
Zonular	N	3	8	16	0	1	28	6.60		—
	%	10.7	28.6	57.1	—	3.6		(4)		
Cortical	N	40	38	77	15	12	182	11.03*		—
	%	22.0	20.9	42.3	8.2	6.6		(4)		
Complicated	N	10	15	14	2	1	42	5.87		—
	%	23.8	35.7	33.3	4.8	2.4		(4)		
Congenital (F)	N	8	10	7	0	3	28	—		—
	%	28.7	35.7	25.0	—	10.7				
(I)	N	23	32	46	0	5	106	—		—
	%	21.7	30.1	43.4	—	4.7				
(F+I)	N	31	42	53	0	8	134	5.54		2.66
	%	23.1	31.3	39.6	—	6.0		(3)		(2)
Juvenile (F)	N	3	3	6	2	0	14	—		—
	%	21.4	21.4	42.9	14.3	—				
(I)	N	11	16	16	0	3	46	—		—
	%	23.9	34.8	34.8	—	6.5				
(F+I)	N	14	19	22	2	3	60	4.08		0.79
	%	23.3	31.7	36.7	3.3	5.0		(3)		(2)
Senile (F)	N	5	3	20	2	0	30	—		—
	%	16.7	10.0	66.7	6.7	—				
(I)	N	37	47	73	14	17	188	—		—
	%	19.7	25.0	38.8	7.5	9.0				
(F+I)	N	42	50	93	16	17	218	13.05**		7.16
	%	19.3	22.9	42.7	7.3	7.8		(3)		(3)
Total (F)	N	16	16	33	4	3	72	—		—
	%	22.2	22.2	45.8	5.6	4.2				
(I)	N	71	95	135	14	25	340	—		—
	%	20.9	27.9	39.7	4.1	7.4				
(F+I)	N	27	111	168	18	28	412	10.56*		1.36
	%	21.1	26.9	40.8	4.4	6.8		(3)		(2)
Control	N	58	40	88	4	8	198	—		—
	%	29.3	20.2	44.4	2.0	4.0				

N=number of palms studied, F=familial, I=isolated, D=disease, C=control. * $P<0.05$, ** $P<0.01$. Figures in parentheses are degrees of freedom.

the disease sub-groups with the corresponding controls showed significant differences for (a) male congenital cataract (C line, χ^2 8.74 3 d.f., $P<0.05$; A line, χ^2 11.46 3 d.f., $P<0.05$); (b) male juvenile cataract (A line, χ^2 13.31 4 d.f., $P<0.01$); (c) male senile only (B line χ^2 9.99 4 d.f., $P<0.05$).

Female congenital and senile cases differed significantly from controls in the terminations of all 4 main lines while juvenile cataracts showed the difference only for B and A lines (Tables 7 to 10).

These findings indicate a possible sex-dependent heterogeneity in the main line terminations in cataracts.

Discussion

A comparative analysis of the alignment of 4 main lines (DCBA) in the present study showed that senile and cortical types differ from the controls in terminations of all 4. This similarity between senile and cortical types must be due to the high

proportion (80%) of cortical types occurring in the senile cases. Among other cataracts compared with controls, congenital types differed only in the D and A line terminations while zonular types differed in C and A lines, and nuclear types in B and A line terminations. All other types of cataract differed only in A line terminations. This indicates that the association of main line terminations is specific to the type of cataract, and probably is influenced by the pleiotropic mechanism of the genes and the other factors controlling the type of cataract. It also suggests that there is an effect of a monogenic condition such as cataract on a polygenic character such as dermatoglyphics. The association between main line polymorphisms and ocular defects does not appear to have been reported previously.

The differences found between the familial and isolated cases suggest the possibility of considering D and A line terminations in the identification of familial senile cataracts.

TABLE 6. Distribution of A line terminations in patients with cataract

		Points of terminations					Total	D v. C	χ^2	F v. I
		3	4	5'	5''	Others				
Type of cataract:										
Total	N	3	4	4	3	4	18	19.21*		—
	%	16.7	22.2	22.2	16.7	22.2		(4)		
Nuclear	N	5	3	6	2	4	20	12.60**		—
	%	25.0	15.0	30.0	10.0	20.0		(4)		
Zonular	N	10	5	9	0	4	28	39.06**		—
	%	35.7	17.9	32.1	—	14.3		(4)		
Cortical	N	76	42	48	8	8	182	22.61**		—
	%	41.8	23.1	26.4	4.4	4.4		(4)		
Complicated	N	13	12	11	2	4	42	16.56**		—
	%	31.0	28.6	26.2	4.8	9.5		(4)		
Congenital (F)	N	11	4	10	0	3	28	—		—
	%	39.3	14.3	35.7	—	10.7				
(I)	N	34	19	34	0	19	106	—		—
	%	32.1	17.9	32.1	—	17.9				
(F + I)	N	45	23	44	0	22	134	30.06**		0.46
	%	33.6	17.2	32.8	—	16.4		(3)		(2)
Juvenile (F)	N	3	5	6	0	0	14	—		—
	%	21.4	35.7	42.9	—	—				
(I)	N	10	19	8	0	9	46	—		—
	%	21.7	41.3	17.4	—	19.6				
(F + I)	N	13	24	14	0	9	60	41.98**		2.21
	%	21.7	40.0	23.3	—	15.0		(3)		(2)
Senile (F)	N	10	8	6	5	1	30	—		—
	%	33.3	26.7	20.0	16.7	3.3				
(I)	N	81	38	55	5	9	188	—		—
	%	43.1	20.2	29.3	2.7	4.8				
(F + I)	N	91	46	61	10	10	218	23.25**		9.42*
	%	41.7	21.1	28.0	4.6	4.6		(3)		(3)
Total (F)	N	24	17	22	5	4	72	—		—
	%	33.3	23.6	30.6	6.9	5.6				
(I)	N	125	76	97	5	37	340	—		—
	%	36.8	22.4	28.5	1.5	10.9				
(F + I)	N	149	93	119	10	41	412	41.18**		5.56
	%	36.2	22.6	28.9	2.4	10.0		(3)		(3)
Control	N	125	20	36	5	12	198	—		—
	%	63.1	10.1	18.1	2.5	6.1				

N=number of palms studied, F=familial, I=isolated, D=disease, C=control. * $P<0.05$, ** $P=0.01$. Figures in parenthesis are degrees of freedom.

It is difficult at this time to offer any explanation for the male to female heterogeneity observed in the present study as no information is available on the main line polymorphisms in the 2 sexes either in the normal population (especially from the local population) or those suffering from other diseases. Sex variations are however reported for other dermatoglyphic characters such as finger and palmar patterns (Holt, 1968; Schauman and Alter, 1976).

The present findings indicate the necessity for further investigations on the main line polymorphisms in common diseases.

Acknowledgments

We thank Professor O. S. Reddi, former Head, Department of Genetics, Osmania University, and Dr P. Siva Reddy, Director, Sarojini Devi Eye Hospital and Institute of Ophthalmology, Hyderabad, for providing the necessary

facilities. Our thanks are also due to the ophthalmologists concerned in diagnosing the cases included in the study.

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TABLE 7. Distribution of D line termination in male and female patients with cataract

	Males						Females					
	Points of termination			Points of termination			Points of termination			Points of termination		
	7	9	11	Total	7	9	11	Total	7	9	11	Total
Type of cataract:												
Congenital	N 26 % 32.5	18 22.5	33 41.2	80	20 37.0	16 29.6	17 31.5	54	1 1.9			2.91 (3)
Juvenile	N 11 % 34.4	9 28.1	12 37.5	32	8 28.6	10 35.7	10 35.7	28				2.10 (3)
Senile	N 20 % 34.4	16 19.5	39 47.6	82	32 23.5	23 16.9	72 52.9	136	9 6.6			6.12 (3)
Control	N 26 % 27.9	33 33.7	35 35.7	98	17 17.0	37 37.0	46 46.0	100				3.60 (3)

N=number of palms studied, M=males, F=females, D=disease, C=control. * $P<0.05$, ** $P<0.01$. Figures in parenthesis indicate degrees of freedom.

TABLE 8. Distribution of C line termination in male and female patients with cataract

	Males						Females					
	Points of termination			Points of termination			Points of termination			Points of termination		
	7	9	11	Total	7	9	11	Total	7	9	11	Total
Type of cataract:												
Congenital	N 12 % 15.0	15 16.7	37 46.3	80	15 27.8	16 29.6	20 37.0	54	3 5.6			8.74* (3)
Juvenile	N 10 % 31.3	4 12.5	16 50.0	32	1 3.6	6 21.4	15 53.6	28	6 21.4			9.61* (3)
Senile	N 16 % 19.5	25 30.5	28 34.1	82	23 16.9	35 25.7	55 40.4	136	23 16.9			1.21 (3)
Control	N 19 % 19.4	26 26.5	47 47.9	98	12 12.5	34 35.4	43 44.8	96	7 7.3			2.88 (3)

N=number of palms studied, M=males, F=females, D=disease, C=control. * $P<0.05$, ** $P<0.01$. Figures in parenthesis indicate degrees of freedom.

TABLE 9. Distribution of B line termination in male and female patients with cataract

	Males										Females										χ^2	
	Points of termination					Points of termination					Points of termination					χ^2						
	5'	5"	7	9	Others	Total	5'	5"	7	9	Others	Total	M	v. F	D			C	F			
Type of cataract:																						
Congenital	N 11 % 13.7	27 33.7	36 45.0	—	6 7.5	80	20 37.0	15 27.8	17 31.5	—	2 3.7	54	10.17* (3)	14.61** (4)	7.16 (4)	—	—					
Juvenile	N 9 % 28.1	10 31.3	11 34.4	1 3.1	1 3.1	32	5 17.8	9 32.1	11 39.3	1 3.6	2 7.1	28	1.31 (4)	13.70** (4)	2.37 (4)	—	—					
Senile	N 19 % 23.2	17 20.7	36 43.9	2 2.4	8 9.8	82	23 16.9	33 24.3	57 41.9	14 10.3	9 6.6	136	6.35 (4)	209.00** (4)	9.99* (4)	—	—					
Control	N 21 % 21.4	33 33.7	42 42.9	1 1.0	1 1.0	98	37 37.0	7 7.0	46 46.0	3 3.0	7 7.0	100	26.92** (4)	—	—	—	—					
N= number of palms studied, M= males, F= females, D= disease, C= control. * $P < 0.05$, ** $P < 0.01$. Figures in parenthesis indicate degrees of freedom.																						

N= number of palms studied, M= males, F= females, D= disease, C= control. * $P < 0.05$, ** $P < 0.01$. Figures in parenthesis indicate degrees of freedom.

TABLE 10. Distribution of A line termination in male and female patients with cataract

	Males										Females										χ^2	
	Points of termination					Points of termination					Points of termination					χ^2						
	3	4	5'	5"	Others	Total	3	4	5'	5"	Others	Total	M	v.	F			M	v.	F		
Type of cataract :																						
Congenital	N 25 % 31.3	12 15.0	31 38.7	—	12 15.0	80	20 37.0	11 20.4	13 24.1	—	10 18.5	54	3.24 (3)	—	11.46* (4)	35.04* (3)						
Juvenile	N 6 % 18.7	14 43.7	11 34.4	—	1 3.1	32	7 25.0	10 35.7	3 10.7	—	8 28.6	28	10.58* (3)	—	13.31** (4)	48.58** (3)						
Senile	N 34 % 41.5	15 18.3	25 30.5	4 4.9	4 4.9	82	57 41.9	31 22.8	36 26.5	6 4.4	6 4.4	136	0.88 (4)	—	0.68 (4)	230.11** (4)						
Control	N 43 % 43.9	18 18.4	25 25.5	5 5.1	7 7.1	98	82 82.1	2 2.0	11 11.0	—	5 5.0	100	35.64** (4)	—	—	—	—	—				

N=number of palms studied, M=males, F=females, D=disease, C=control. * $P < 0.05$, ** $P < 0.01$. Figures in parenthesis indicate degree of freedom

N= number of palms studied, M= males, F= females, D= disease, C= control. * $P < 0.05$, ** $P < 0.01$. Figures in parenthesis indicate degrees of freedom.