Caracterisation anthropologic by Consanguinity, abortion, neonatal mortality and morbidity in some western Algerian populations .

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ABSTRACT : ***The incidence of consanguinity was assessed in some western Algerian populations. 2535 couples were questionned, among these couples 836 were consanguineous unions and 575 first cousin unions. Consanguinity frequencies vried, according to location, from 19% to 52% with an average of 33%. In general, marriage between blood relations are common practices, first cousin unions constitue the predominant type of mating. The incidence of consanguinity on biological fertility was analysed. The results showed a significantly effect of consanguinity on the rate of abortions and neonatal mortality. Our data indicate also that mental diseases and deaf dumb patients were significantly increased by consanguinity.***

Introduction

Consanguineous marriages are recognised as a common practice in arabic populations. The main achievement of this particular type of marriage is the maintenance of family structure and property. The highest rates of consanguinity are in the middle east. In the middle orient, the rate of consanguineous marriage is 50% (Zlotogora, 2000). In Arab Emirates, Saudi Arabia, Koweit, Palestinian and Beyrouth, the incidences were 50.5%, 50%, 50%, 45% and 26% respectively (Klat and Khudr, 1984 ; Zlotogora, 2000 ; Bener et al., 2001).

The prevalence of consanguinity is 23% among algerian population (Benallegue and Kedj, 1984).

Among the consanguineous unions, first cousin unions were the clearly preferred form in arabic and muslim populations and were favoured by strong social, cultural, economic and demographic approaches. In fact, first cousin marriages were identified as the favorite custum in arabic and muslim countries (Klat and Khudr, 1984; Zlotogora, 1997).

However, consanguineous marriages might result in several disadvantages like the expression of recessive deleterious alleles in the offspring, and in general groups at this subsistence level are much more vulnerable to environmental factors (Biemont et al., 1974 ; Solignac et al., 1995).

Several studies have shown that consanguinity is associated with an increased risk of congenital malformations, recessive gene disorders, abortions, stillbirths and other types of morbidity and mortality (Benallegue and Kedj, 1984 ; Al-Talabani

et al., 1998 ; Hussain, 1998 ; Yacoob et al., 1998 ; Mathias et al., 2000 ; Zlotogora, 2000 ; Bener et al., 2001 ; Rittler et al., 2001).
While the associations between consanguinity and health parameters has been examined in various muslim populations, comparable informations are limited in western Algeria.
The principal aim of this study was to estimate the rate of consanguinity in some populations of western Algeria. The secondary intent was to investigate the effects of this common practice on abortions and neonatal mortality, and some frequent diseases in these selected populations.

Materiel and Methods

An interview survey was carried out in 12 populations of western Algeria (carte). 2535 couples were questioned. Among these couples, 836 were consanguineous unions with 575 first cousin unions.
The data collected comprise informations on :

1- Relationships between spouses
2- Obstetric parameters such as abortions and neonatal mortality
3- Morbidity.

Chi-square test was performed to test for differences in proportions of categoric variables between two or more populations.

Results and Discussion :

Among the studied population, the consanguinity rate was 33%, which was lower than that observed in most arabic and muslim populations. However, this incidence was higher than that reported by some others in Algerian population (23%) (Benallegue and Kedj, 1984).
Consanguinity frequencies varied, according to the location of the different groups studied, from 19% to 52%.
The high consanguinity rates were observed in ZSB (52%) and OM (43%). These values were close to those reported in middle orient where 50% of unions were as to consanguineous marriages (Zlotogora, 2001).
The lowest consanguinity rates were observed in SAB and AEK **(table1)**.
In general, in our population, consanguineous marriages are common practicies, first cousin unions constitute the predominant type of mating. This type of union is a well known characteristic of arabic and muslim populations (Klat and Khudr, 1986 ; Zlotogora, 1997).
On the other hand, our data showed a close link between consanguinity and incidence of abortions ($p<0.01$) and neonatal mortality ($p<0.05$).

It is well known that consanguineous unions resulted in a homozygous state which may increase the frequency of deleterious genes (Klat and Khudr, 1986 ; Solignac et al., 1995, Bener et al., 2001)

As indicated in previous research, consanguinity is associated with elevated infant mortality (Hussain, 1998 ; Yacoob et al.,2001) . However, our results are not consistent with some prvious data. A study by Robert and Bonno (1973) on samaritain populations of Israel and Jordany indicated no effects of consanguinity on abortions (Hussain, 1998). On the other hand, Awadi and al.(1986) and Reddy (1992) conclued that consanguinity was an independant factor from mortality in south India and kauwait populations (Yacoob et al., 2001).

The authors explained this "no-effect" by the presnce of an evolutionary and adaptative mechanism that may lead to a progressive loss of deleterious genes among consanguineous generations (Klat and Khudr, 1986 ; Bener et al., 2001 ; Bittles et al., 2001 ; Rittler et al., 2001).

Some authors indicated that increased fecondity in consanguineous couples could reflect a good fetomaternal compatibility resulting from homozygous state ; this would result in a decreased incidence of ABO incompatibilities, particulary Rh system (Luna et al., 1998 and 2001).

Our results showed also a significant effect of consanguinity on the rate of mental diseases ($p<0.01$) and deaf dumb patients ($p<0.05$).

Similar results were obtained by Seemanova (1971) who reported that 39.8% of consanguineous infants developped mental diseases and deaf, compared to 5.3% of infants of no consanguineous unions (Van Den Berghe, 1983). Zlotogora et al. (2001), reported that high consanguinity populations of Palestin are at increased deaf risk.

Our findings noted that consanguinity was associated with low risk of diabets ($p<0.01$), HTA ($p<0.01$) and anemia ($p<0.05$).

However, Schwartz and Spach (1988) indicated HTA increased with high relationships between spouses. Benallegue (1984) and Delcourt (1996) noted that consanguineous marriages result in increased diabets risk.

P	C		NC		T
	size	Freq	size	Freq	
Hon	122	31,93	260	68,06	382
SD	32	24,79	97	75,19	129
SEK	98	32,34	205	67,65	303
SBD	36	31,57	78	68,42	114
SAB	23	18,85	99	81,15	122
Ay	134	33,33	268	66,67	402
FL	37	30,33	85	69,67	122
AEK	33	18,86	142	81,14	175
HMR	16	27,58	42	72,41	58
ZSB	37	52,12	34	47,89	71
Ned	71	26,79	194	73,21	265
OM	220	42,80	294	57,20	514
T	**836**	**32,98**	**1699**	**67,02**	**2535**

Table 1 Distribution of consanguinity rate in some West Algerian populations

P : population
T : total
Freq : frequency
C : consanguineous
NC : no consanguineous

P	C		NC		T	
	SB	*Cple*	*SB*	*Cple*	*SB*	*Cple*
OM	13	12	07	07	20	19
FL	09	04	09	08	18	12
Ay	17	16	21	17	38	33
HMR	02	01	00	00	02	01
ZSB	03	03	04	02	07	05
AEK	00	00	06	03	06	03
Ned	10	04	31	14	41	18
Hon	93		164		257	
SD	32		05		37	
SEK	77		99		176	
SBD	16		50		66	
SAB	05	02	05	03	10	05
T	**277**	**42**	**401**	**54**	**678**	**96**

Table 2 Percentage distribution of offspring neonatal mortality in some west Algerian populations

SB : still-born
Cple : couple

P	C		NC		T	
	Ab	*Cple*	*Ab*	*Cple*	*Ab*	*Cple*
OM	130	86	151	107	281	193
FL	16	13	22	18	38	31
Ay	44	29	73	50	117	79
HMR	03	02	14	06	17	08
ZSB	03	03	05	03	08	06
AEK	03	03	27	13	30	16
Ned	34	17	88	39	112	56
Hon	22		67		89	
SD	05		29		34	
SEK	26		44		70	
SBD	17		28		45	
SAB	19	08	30	18	49	26
T	**322**	**161**	**578**	**254**	**900**	**415**

Table 3 Percentage distribution of abortions in some west Algerian populations

Ab :abortion
Cple :couple

Consanguinity	samples	controls	T	X^2	P
C	161	410	571	8,2569	<0,01
NC	254	904	1158		

Table 4 Relationship between consanguinity and abortion

Consanguinity	samples	controls	T	X^2	P
C	42	529	571	4,9539	<0,05
NC	54	1104	1158		

Table 5 Relationship between consanguinity and neonatal mortality

		C	NC	T	X^2	P
HTA	**Samples**	62	242	304	16,261	<0.01
	Conrols	3022	6642	9664		
Diabet	**Samples**	61	271	332	25.682	<0.01
	Conrols	3023	6613	9636		
Anemia	**Samples**	04	25	29	4.0325	<0.05
	Conrols	2911	6340	9251		
Mental Troubles	**Samples**	39	55	94	5.034	<0.05
	Conrols	3002	6747	9749		
Deaf-Dumb	**Samples**	16	05	21	17.395	<0.01
	Conrols	26170	5687	8304		

Table 6 Relationship between consanguinity and morbidity

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