Rh Incompatibility: Prevalence, Knowledge and Attitude for Premarital Test Couples.

المعارف والمواقف اتجاه عدم تطابق صنف الدم بين المقبلين على الزواج

Ali Hassan Hayyawi, *MD, PhD (CM)* Baghdad /Al-Resafa Directorate of Health

Hadi Jabor Suhail, *MD, PhD (CM)* Al-Qadisia Medical college, Department of Community Medicine

Wisam Shaker Selman, *M B Ch B* Baghdad /Al-Resafa Directorate of Health /Primary Health Care Sector- AIDS control department

Hj_suhail@yahoo.com

الخلاصة:

أهداف الدراسة : تهدف الدراسة إلى تحديد مدى انتشار المعرفة والمواقف تجاه عدم تطابق فصيلة الدم بين المقبلين على الزواج

المنهجية: أجريت دراسة مقطعية على 550 (زوج وزوجة) في جانب الرصافة في مدينة بغداد للفترة من 15 كانون الثاني إلى نهاية شهر نيسان 2012 في ثلاث مراكز تخصصية لفحص الأزواج ما قبل الزواج وهي العلوية ، 14 تموز ، وجمال الموسوي. وكانت فحوصات ما قبل الزواج تشتمل على فحص العوز المناعي ، والفحص الخاص بالزهري بالإضافة الى فحص فصيلة الدم للمتزوجين. شملت الدراسة كافة الأزواج الذين راجعوا خلال هذه الفترة طوعا وبدون استثناء ، بإعطائهم نسخة من أسئلة مهيأة سلفا لمعرفة بعض التفاصيل عن المفحوصين شملت العمر ،الجنس ،التحصيل الدراسي ،وفصيلة الدم الخاصة بكل زوج . وتم تحليل النتائج باستخدام الوسائل الاحصائية الوصفية كالنسبة المئوية والاستنتاجية كمربع كاي بواسطة Spss 10

النتائج: كان أعلى معدل انتشار بين حاملي فصيلة دم (A) اذ كان 30.1% ، يليه حاملي فصيلة دم (O) وكان 29.6% ، ثم حاملي فصيلة دم (B) 27.2% ، وأخيرا حاملي فصيلة دم (AB) 13.1%. وجد من خلال الدراسة أن نسبة فصيلة الدم السالبة كانت 4.2 % منها 3.6% بين الإناث و 4.75% بين الذكور. كما وجد أن 41.7% من المفحوصين يعرفون عن ماهية الفحوص التي تجرى لها. كما أوضحت الدراسة أن هناك علاقة بين مستوى التحصيل الدراسي للزوج والقناعة بالمراجعة للفحص، أذ وجد ان الازواج المثقفين يستجيبون أكثر (27.2%) بينما كان الأقل هم ألاميون (0.5 %)

الاستنتاجات: اقل من نصف مجموعة الدراسة عرف عن اختبار الدم الذي اجري لهم. كما وأعطى الأشخاص ذوي التعليم العالي أعلى معدل للاستجابة الحقيقية، وأعطى الأميون على الجانب الآخر أقل استجابة حقيقية عن هذه الحالة التي تؤدي إلى عدم التطابق.

3. يطلب الفئة العمرية من الشباب من أسرهم وأقاربهم لتقديم المشورة حول عدم التوافق، في حين تطلب الفئة العمرية الأكبر سنا المشورة الطبية بمعدل أعلى.

التوصيات: رفع مستوى المعرفة حول عدم تطابق فصيلة الدم والاستفادة من قنوات و سائل الإعلام المختلفة؛ وتدريس الموضوع في مناهج المدارس الثانوية التقليدية؛ وبرنامج التثقيف الصحي كما ينبغي التأكيد على الاختبار قبل الزواج.

Abstract:

Objectives of the study: The study aims to determine the extent of the spread of knowledge, attitudes direction of blood group mismatch between couples

Methodology: Conducted cross-sectional on 550 couple study in Rusafa in Baghdad, for the period from 15th of January through April 2012 in the three specialized centers for screening couples before marriage which is Alawite, July 14, and Jamal al-Moussawi. The examinations before marriage include the examination of immune deficiency, and examination Special syphilis in addition to the screening of blood type for married couples. The study included all couples who reviewed during this period, voluntarily and without exception, giving them a copy of the questions prepared in advance to find out some details about the subjects included age, sex , educational attainment , and blood type for each pair. Data was analyzed by using percentage and chi square**.**

Result: The highest prevalence rate among the holders of blood group (A) as it was 30.1 %, followed by holders of blood group (f) was 29.6 %, then the holders of blood type (b) 27.2 % , and finally the holders of blood type (AB) it was 13.1 % The study found that the proportion of negative blood type was 4.2 % , including 3.6 % among females and 4.75 % for males. Also found that 41.7 % of the subjects knew about the nature of the tests performed as explained to them. Study that there is a relationship between the level of academic achievement for the pair and conviction Balmarjah examination , as was found to respond more educated couples (27.2 %) while the least are illiterate (0.5 %).

Conclusions: Less than half of the study group knew about the blood test done for them. Subjects with higher education gave the highest rate of true response, the illiterate on other hand gave the lowest true response about which case results in incompatibility. young age group attends their families and relatives for counseling about incompatibility , while the older age group attend medical advice at a higher rate .
Recommendations: There is a great demand for a large sample to elevate the knowledge level about the Rh incompatibility. Premarital test should :be emphasized on for screening and education.

Keywords: Rh ,Blood group , premarital screening.

INTRODUCTION:

Blood group may be the most complex genetically of all blood type system since it involve 45 different antigens on the surface of the red blood cells[(1)]. The Rh factor was named after the monkeys in which it was first discovered[(2)]. Despite its actual genetic complexity the inheritance of this trait usually can be predicted by simple conceptual model[(1)].

Rh incompatibilities can occur when the Rh–negative mother exposed to Rh-positive blood either from perinatal feto maternal hemorrhage or from Rh-positive blood transfusion. This exposure lead to sensitization of the mother (alloimmunization) that initiate antibody production against the foreign Rh antigen [(1-3)].

Rh-incompatibility is the most frequent blood group incompatibilities in the clinical practice which can cause fetal anemia, hydrops, and even death[(3-5)].

During the past 40 years, rhesus alloimmunization has gone from being one of the major causes of perinatal mortality to an almost eradicated disease, this related to raveling of the pathophysiology, the development of the reliable diagnostic tools, a very effective prophylaxis programme, and for the availability of treatment by intrauterine blood transfusion[(6)]. Anti-D given within 72 hours after birth, reduce the risk of Rh-D alloimmunization in rhesus negative women who have given birth to rhesus-positive infant. However, the evidence on the optimal dose is limited[(7)].

This study aimed at finding the prevalence of Rh-incompatibility and to evaluate the knowledge and the behaviour of the couples attending for premarital test toward incompatibility.

METHODOLOGY:

A cross sectional study conducted on 550 couple in AL-Resafa side of Baghdad which is bigger than the other side Al-Karkh, The period of the study was from 15th of January through April 2012.

There are three specialized medical centers (SMC) in Al-Resafa side performing the premarital test these are: AL-Alwayia; 14 Tummouz; and Jamal AL-Mousawy HIV testing centers. The premarital test composes of HIV and VDRL serological tests in addition to ABO and Rh grouping test.

ABO and Rh grouping done by mixing a drop of blood from the responders with Anti A, B, D, reagents on a slide looking for agglutination using Brotec Kits from Biotec Laboratories Ltd-for slide and tube test.

All the couples attending one of the SMC seeking premarital tests were eligible to participate in the study voluntarily without any exclusion criteria. A short anonymous questionnaire was constructed for the purpose of the study to collect data about the responders. Some questions cover demographic aspects, others were designed to evaluate the knowledge about the Rh which consist to both males and females fill in the

questionnaire through direct interview with the researchers. Some questions were modified according to response of the participants in a pilot study done in Al-Alwayah SMC.

The collected data grouped and analyzed by SPSS version 12 software programme. Pearson Chi-square test was used to assess the relationship between the variables, P-value of 0.05 and below was considered as significant.

RESULTS:

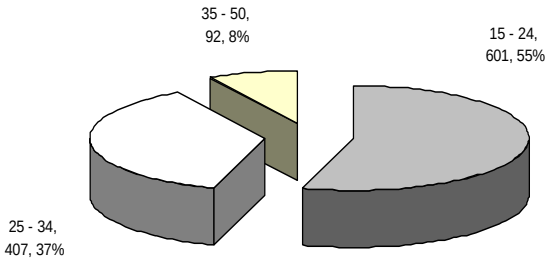

Figure-1: Distribution of the sample according to age group.

Figure-1 shows that 550 couple participate in the study. The mean age was (23+6) year for females and (27 + 6) year for male the highest rate of marriage (54.6%) was among the young age group (15-24).

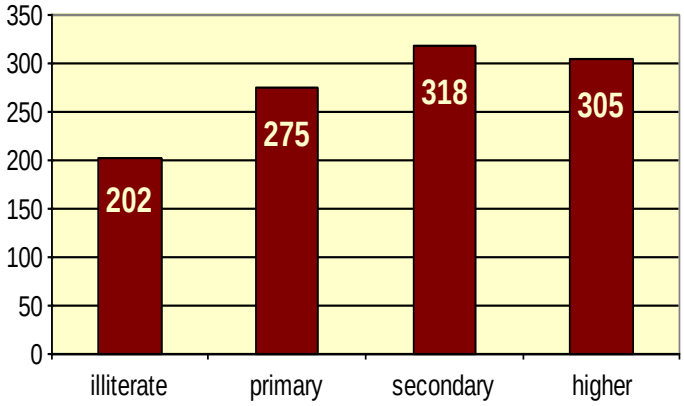

Figure-2: Distribution of the study group according to educational status.

Figure 2 shows the educational level of the sample. More than 1/3rd of the subject did not finish their primary level of education.

Table-1: Prevalence of different types of blood for the participants.

ABO system		Rh factor					
		Rh-positive		Rh-negative		Total	
		No.	%	No.	%	No.	%
A		318	30.2	13	28.3	331	30.1
B		286	27.1	13	28.3	299	27.2
AB		140	13.3	4	8.7	144	13.1
O		310	29.4	16	34.8	326	29.6
Total		1054		46		1100	
Total	Male	524	96.4	26	3.6	550	100
	Female	530	95.3	20	4.7	550	100
	total	1054	95.8	46	4.2	1100	100

Table (1) shows that the highest prevalence blood group was group A (30.1%), followed by O (29.6%) then B (27.2%) and lastly came AB (13.1%). The prevalence of Rh-negative among the study group was (4.2%), it was (3.6%) among females and (4.75) among males.

Table-2: Knowledge of participants about the premarital test.

		F	%
Knowing the blood test	No	643	58.5
	Yes	457	41.5
	Total	**1100**	**100**
Knowledge about the type of the test	Blood grouping	64	5.8
	Compatibility	289	26.3
	AIDS	51	4.6
	AIDS & Compatibility	43	3.9
	AIDS & Blood grouping	10	0.9
	total	**643**	**58.5**

Table (2) reveals that sixteen negative female out of (20) were engaged to positive male giving a prevalence of incompatibility of (1.5%). Less than half of the study group 457(41.5%) knew about the blood test done for them, 289(26.3%) reported that the test was for blood compatibility, and only 43(9.45) reported both AIDS and compatibility.

Table-3: Responses or Relationship between knowledge about Rh-incompatibility and their educational status.

Educational status	Response							
	True		False		Do not know		Total	
	No.	%	No.	%	No.	%	No.	%
illiterate	1	.5	11	5.4	190	94.1	202	100
primary	9	3.3	14	5.1	252	91.6	275	100
secondary	36	11.3	21	6.6	261	82.1	318	100
higher	83	27.2	46	15.1	176	57.7	305	100
Total	129	11.7	92	8.4	879	79.9	1100	100

Table (3) presents that subjects with higher education gave the highest rate of true response 83 (27.2%), the illiterate on other hand gave the lowest true response 1(0.5%) about which case results in incompatibility. Majority of the secondary educational status did not know the answer. Pearson chi-square test showed significant relationship P= 0.000.

Table-4: Attitude of participants toward engagement project distributed according to educational status.

Educational levels	Behavior of subjects in case of incompatibility toward the project of engagement						Total
	Continue the project		Revoke the project		Do not know what to do		
	No.	%	No.	%	No.	%	
illiterate	161	79.7	4	2.0	37	18.3	202
primary	221	80.4	10	3.6	44	16.0	275
secondary	241	75.8	19	6.0	58	18.2	318
higher	251	82.3	15	4.9	39	12.8	305
Total	874	79.5	48	4.4	178	16.2	1100

Pearson $X^2 = 9.527$ df = 6 P-value = 0.146

Table-4 shows significant relationship between the educational status of the individual and the behavior toward the engagement project P-value (0.146).

Table-5: Relationship between counseling and age group, sex, and education levels.

Variables		Counseling side						Total	**Pearson Chi-Square Tests**
		Family and relatives		Friends		Medical advice			
		No.	%	No.	%	No.	%	No.	
Age group	15-24	178	29.6	19	3.2	404	67.2	601	$X^2 = 31.1$ P = 0.000 significant
	25-34	64	15.7	14	3.4	329	80.8	407	
	35-50	13	14.1	4	4.3	75	81.5	92	
	Total	255	23.2	37	3.4	808	73.5	1100	
Sex	female	146	26.5	17	3.1	387	70.4	550	$X^2 = 7.04$ P = 0.030 Significant
	male	109	19.8	20	3.6	421	76.5	550	
	Total	255	23.2	37	3.4	808	73.5	1100	
Educational status	illiterate	93	46.0	8	4.0	101	50.0	202	$X^2 = 119.7$ P = 0.000 significant
	primary	76	27.6	11	4.0	188	68.4	275	
	secondary	69	21.7	9	2.8	240	75.5	318	
	higher	17	5.6	9	3.0	279	91.5	305	
	Total	255	23.2	37	3.4	808	73.5	1100	

Table (5) shows that young age group attends their families and relatives for counseling about incompatibility, rate 178(29.6%) which was higher than the others, while the older age group attend medical advice at a higher rate 75(81.5%). There was a difference between both sexes regarding to whom they went for advice. Females are more than males 146(26.5), 109(19.8%) respectively in taking their families and relatives advice.

Illiterate seek families and relatives counseling more than others, at a rate of (46.0%) while the higher educational level subjects asked for medical advice at a rate of (91.5%) which is higher than other group. Pearson Chi-square test showed significant relationship P-value (0.000), (0.030), (0.000) respectively.

Table-6: Distribution of knowledge about incompatibility according to sex and educational status.

		Yes		No		Do Know		Total	Pearson Chi-Square Tests
		No.	%	No.	%	No.	%	No.	
Sex	female	377	68.5	78	14.2	95	17.3	550	$X^2 = 5.258$ P = 0 .072
	male	411	74.7	65	11.8	74	13.5	550	
	Total	788	71.6	143	13.0	169	15.4	1100	
Educational status	illiterate	102	50.5	46	22.8	54	26.7	202	$X^2 = 106.53$ P = 0.000
	primary	177	64.4	59	21.5	39	14.2	275	
	secondary	243	76.4	28	8.8	47	14.8	318	
	higher	266	87.2	10	3.3	29	9.5	305	
	Total	788	71.6	143	13.0	169	15.4	1100	

Table-6 revealed that good proportion of study group 788(71.6%) knew that there is treatment for incompatibility with male slightly higher than female 411(74.7%), 377(68.5%) respectively. Yet Pearson Chi-square test showed no significant relationship P-value (0.072). The proportion of those who know about the availability of treatment for the incompatibility increased with the increasing of the educational level starting from 102(50.5%) for illiterate to reach 266(87.2%) for higher education. Pearson Chi-square test was significant P-value (0.000).

DISCUSSION:

Early marriage is observed in the study group which reflects the social attitude toward encouraging the early marriage.

The slightly higher prevalence of group A over that of group O is agreed with prevalence in other countries like Lebanon (47.25%)[8], Turkey (43.7%)[9], France (45.29%)[10], Hungary (39.5%)[11]. But disagreed with other countries where group O is the highest prevalence like Kuwait (47.3%)[12], Bangladish (33.8%)[13], Greece (43.7%)[14], Saudia Arabia (53.2%)[15], Egypt (36.4%)[16], Algeria (60%)[17], India (37.9%)[18]. Rh-negative prevalence in this study is (4.2%) agreed with the prevalence in Kishmiri population (4%)[19]. Rh negative among female (3.6%) was less than Rh negative prevalence found in a study conducted in 2010 among Nigerian population was (9.5%).

More than half of the sample did not know about the premarital blood test this point to the shortage in health education and general information and awareness of subjects. The significant relationship between the health knowledge and educational status probably give a clue that the classical school teaching curriculum give reasonable

information about general health subjects. Other thing is that educated people can get access to written media in addition to other audiovisual media. (17)

Although the higher educated group gives the higher rate of true response toward incompatibility and having higher level of knowledge still their behavior was not encouraging toward this event, this could be due to their desire to be away from anticipated medical problem in the future so they chose to quit from the engagement project. (18)

Young subject discuss the matter with their families and relatives probably because they lack the enough experience, and as the individual get older they start to behave more independently. Educated people select medical advice more than other: this is probably because some of them were more educated than their families hence they prefer medical advice for further information; the second point may be due to the feeling of embarrassment because they were interviewed by doctors(19)

CONCLUSION:

Less than half of the study group knew about the blood test done for them. Subjects with higher education gave the highest rate of true response; the illiterate on other hand gave the lowest true response about which case results in incompatibility. Young age group attends their families and relatives for counseling about incompatibility, while the older age group attends medical advice at a higher rate.

RECOMMENDATIONS:

1. Improve the knowledge level about the Rh incompatibility by utilizing different mass media channel; traditional secondary school curriculum; and health educational programme.
2. Premarital test should be emphasized on for screening and education.

REFERENCES:

1. Salem L, Singer KR. Rh incompatibility. Article updated August 2, 2011. http://www.emedicine.com/emerg/TOPIC507.HTM
2. Ayesha K, Habibulla MM, Biswas J, Begam HA, Sultana r. Planned conception in hyperimmunized rhesus-d negative mother by elective plasmapheresis. Mymensingh Med J, 2001 2 Jul; 16(2 suppl): s67-69. [Medline}
3. Lazer L, Nagy B, Ban Z Nagy GR, Beke A, Papp Z. Non invasive detection of fetal Rh using real-time PCR method. Oru Hetil. 2011 Mar 18; 148(11): 497-500.
4. Kaiser L, Arany A, Veszpremi B, Vizer M. Hydrops Fetalis-a retrospective study. Orv Hetil. 2010. Mar 11; 148(10):P: 457-63.
5. Oepkes D, Adama var Scheltema P. Intrauterine fetal transfusion in the management of fetal anemia and fetal thrompocytopenia. Semin Fetal Neonatal Med. 2010 Dec; 12(6): PP: 432-8.
6. Crowther C, Middleton P. Anti-D administration after child birth for Rhesus alloimmunization. Cochrai Database of systemic reviews 2008 Issue 1 DOI: 10. 1002/14651858.CD000021. This version first published on line 121 April 1997 in Issue 2, 2009.

7. Nasif Raif E. The incidence of blood groups in Lebanese. Lebanon med j. 2005; 11(6)PP: 346-349.
8. Mizan N, Turan and Alptekin, Aytan. The frequencies of ABO blood groups and their distribution according to the geographical regions in Turkey, Ankara. The Turkish Red Crescent Soc. 2009,3(16.)p :66-67
9. Kherumain R, Reynier C and Rousseau PY. Contribution a l'etude does groupes sanguins ABO dans l'Armec Francaise, 6th Int. Congr. Anthrop. Ethnol. Sci. Paris 1960; 1: 337-341. *Cited In:* Lato JA, Masoodi NA, Baht NA, Khan GQ, Kadla SA. The ABO and Rh blood groups in Kihmiri population Indian J for Practicing Doctor. 2009; 3(2):p:43-45
10. Major L, Die Beziehung der Karzinome und der Geschwure des verdavungstraktes zum ABO Bhuitgruppen system (In Hungarian). Oru Hetid 2010; 2 (100):PP: 943-45.
11. Onsoi AA and El-Alfi DC. The ABO blood group in Kuwait. J Kuwait Med 2008;3 (2)p: 3-16.
12. Boyd WC, and Boyd Lyle G. The blood groups and types of the Ramath Navaho. Amer J Phys. Anthrop 2010, 3 (7)PP: 569 - 74.
13. Zervopoulos G, Tsana K and Mihailidis G. Relation of mental disease to blood groups (in Greek) Neuropsychiat Chron2009; 12 (6) pp :12-14
14. Beinab MA, Talib, Lulu A, Al-Nuaim, Mohsen AF, El-Hazini, Arjumand S, Warsy. Blood groups in Saudi Obstetric patients. Saudi Medical Journal 2008 19(3).P :66-68
15. Awny, AY, Kamel K and Hoerman KC. ABO blood groups and haemoglobin variants among Nubian Egypts. UAR amer J Phys. Anthro; 2005, 2 (3) PP: 81 - 82
16. Benabadji M, Ruffie J, Larrouy G, Ducos J, and Vergnes H .Erythrocytaires. Bull Soc. Anthrop. Paris 1965; SII, 7: 171-80. *Cited In:* Lato JA, Masoodi NA, Baht NA, Khan GQ, Kadla SA. The ABO and Rh blood groups in Kihmiri population. Indian J for Practicing Doctor. 2006; 3(2): P:111-113
17. Bhat NA, Kammili MA, Kadla SA, Nafae A. Frequency of blood groups in donors and recipients. The Indian Practitioner. 2009(March) 52; 3:PP: 160-64.
18. Lato JA, Masoodi NA, Baht NA, Khan GQ, Kadla SA. The ABO and Rh blood groups in Kihmiri population. Indian J for Practicing Doctor. 2006; 3(2): P :54-55
19. Nwauche CA, Ejele OA, Okpani AOU. Prevalence of D-phenotype amongst Rhesus Negative females in port Harcourt Nigeria. African J of reproductive health. 2010; 7(1): PP:27-31.