PRE MARITAL COUNSELING &TESTS

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WHAT IS PREMARITAL COUNSELING

Premarital counseling is a type of family therapy that helps couples prepare for marriage. Premarital counseling can help ensure that you and your partner have a strong, healthy relationship in addition to giving you a better chance for a stable and satisfying marriage

PRE MARITAL SCREENING PROGRAM

- Genetic disorders particularly Hemoglobin disorders are common in Saudi Arabia.
- In 2004 the Saudi Ministry of Health implemented a mandatory premarital screening program to decrease the incidence of these genetic disorders in future generations.
- In 2008 this test was updated to include mandatory screening for HBV , HCV and HIV.
- This new program was named “ program of healthy marriage”.

Any succussesful screening program must comply with :

- prevailing culture
- Ethnic values.
- Economic values .
- Societal values.

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المملكة العربية السعودية
وزارة التعليم العالي
جامعة الملك سعود
كلية الطب
ومستشفى الملك خالد الجامعي

الفحص المخبري ما قبل الزواج

تاريخ سحب العينة : / / 14هـ رقم الملف الطبي : .....

البيانات الشخصية

الاسم : ..... الجنسية : .....
العمر : ..... الجنس : □ ذكر □ أنثى
رقم السجل المدني : □□□□□□□□□□
العنوان : ..... الهاتف : .....

HAEMATOLOGY RESULT

TEST	NORMAL RANGE	RESULT	REMARKS
RBC×/L ^{12}10	M: 4.7 – 6.1 --- F: 4.2 – 5.5		
HBg/Dl	M: 13 – 18 --- F: 12 – 16		
Het%	M:42 – 52% --- F: 37 – 47%		
MCVfl	80 – 94		
MCHPg	27 – 32		
MCHCg/dl	32 -36		
RDW	11.5 – 14.5%		
Retic	0.5 – 2 %		
Sikling Test	Positive or Negative		
Hb A	95 – 97%		
Hb A2	2.0 – 3.5%		
Hb F	<1.5%		

ABNORMAL HEMOGLOBIN

HEMOGLOBIN	PATIENT RESULT	HEMOGLOBIN	PATIENT RESULT
Hb S		Hb J	
Hb C		Hb o-Arab	
Hb D		Gb H	
Hb E		Hb Barts	
Hb G		Hb Barts	
Other Hb		Other Test	

PREMARITAL SCREENING VIROLOGY TESTS

HBs Ag Screening by ELISA	□ Positive □ Negative	Anti-HIV & HIV-Ag Screening	□ Positive □ Negative
Anti HCV Screening by ELISA	□ Positive □ Negative	HIV Confirmatory by Western Blot Method	□ Positive □ Negative
HCV Confirmatory by RIBA	□ Positive □ Negative	HBs Ag Confirmatory	□ Positive □ Negative

COMMENT : .....
.....

الطبيب: ..... التوقيع: .....

ملاحظات هامة :

1. هذه الشهادة تبين نتيجة الفحص المخبري لمرضى الأنيميا المنجلية ، الثلاسيميا ، نقص المناعة المكتسبة والتهاب الكبد الوبائي، ولا تشمل أي أمراض أخرى.
2. هذه الشهادة صالحة لمدة ستة أشهر من تاريخ سحب العينة .

الختم

WHAT ARE THE TESTS PERFORMED

- Complete Blood Count.
- Sickle cell test.
- Hemoglobin electrophoresis.
- HBs Ag.
- Anti-HCV.
- HBV screening by ELISA..
- HCV screening by ELISA.
- Anti-HIV.
- HIV-Confirmation by Western blot Method.

WHY TO INCLUDE HEMOGLOBIN DISORDERS IN PREMARITAL SCREENING PROGRAM

- These are autosomal recessive inheritable haemoglobinopathies .
- Common in some regions of Saudi Arabia.
- These are incurable disorders and causes significant morbidity and mortality.
- This imposes a heavy financial burden on the society.

HOW SCREENING TESTS CAN HELP

- A simple blood test can detect CARRIERS of these disorders .
- The future couples could be informed about their chances of producing affected children

WHY TO INCLUDE HIV / HBV /HCV IN PREMARITAL SCREENING PROGRAM

- These diseases are now prevalent in epidemic proportion .
- They can be easily transmitted to sexual partners and to new borns.
- They are not curable .
- The mortality and morbidity rates are high.

LABORATORY INTERPRETATION OF HEMOGLOBINOPATHIES

- β -Thalassemia minor (Trait) : symptomless heterozygous carrier state.
- β -Thalassemia Major : severe symptomatic homozygous Anemia.
- Sickle cell anemia.
- Sickle cell trait.

TYPES OF NORMAL HEMOGLOBIN

- 1.Hb A comprises 92% of adult hemoglobin.
- 2. Hb A2 comprises 2-3% of adult hemoglobin. Increased In β-Thalassemia.
- 3. Hb F -- Comprises less than 1% of hemoglobin in adults. Normal Hemoglobin in Fetus from 3-9th month of life. Increased In β-Thalassemia.

TYPES OF ABNORMAL HEMOGLOBIN CHAIN PRODUCTION

- **Hb H -----found in α-Thalassemia.**

  It is mild to moderate anemia , when 2-3 genes are deleted.

- **Hb Barts --- found in α-Thalassemia.**

  *It is severe form of anemia , when all 4 genes are deleted.

  *Hb Barts cannot carry oxygen and is incompatible with life. Infants are still born or die immediately after birth

TYPES OF ABNORMAL HEMOGLOBIN CHAIN STRUCTURE

- **Hb S -- Sickle Cell Hemoglobin.**

  In homozygous state both genes are abnormal – presents as Sickle cell Anemia.

  Hb is b/w 6-8 gm /dl.

  Reticulocyte count is 10-20%.

  Hb electrophoresis Shows = Hb A : 0 % ,

  Hb SS :95% ,

  Hb F : 2-20% .

- **Hb AS ---Sickle cell trait.**

  In heterozygous state only one chromosome carries the gene. Hb electrophoresis Shows =

  Hb A : 60 % ,

  Hb SS :40% ,

  Hb F : 2 % .

- **Sickling Solubility test:** precipitation of Hb S gives a turbid appearance .

  The parents of affected child will show sickle cell trait.

ABNORMAL HEMOGLOBIN CHAIN STRUCTURE

- Hb C disease ---may be associated with Hb S (Hb SC disease) Increased likely hood of thrombosis with life threatening episodes.

- Hb E ---combined defects of Globin chain production and structure. It is combination of β- thalassemia trait and Sickle cell trait .

GENETIC CARRIER

A person who carries an allele without exhibiting its effects. Such an allele is usually recessive, but it may also be dominant and latent, with symptoms that do not appear until adulthood

WHO IS A CARRIER OF THALESSAEMIA

- **The β Thalassemia Trait is indicated by the following :**

- Normal or slightly low Hemoglobin.
- Decreased mean cell volume (MCV)
- And/or reduced mean cell hemoglobin (MCH).
- Hemoglobin A2 Level >3.5% by Hemoglobin electrophoresis.
- Microcytic hypochromic picture.

HOW WILL YOU INTERPRET AN AUTOSOMAL RECESSIVE DISORDER

- This disorder manifests itself only when individual is homozygous for the disease Allele.
- The parents are generally unaffected healthy carriers .
- The offspring of an effected person will be healthy heterozygotes unless other parent is also a Carrier.

POSSIBLE FUTURE CHILD'S FAITH

- So when Carrier marry a Carrier ; the offspring could be either of the following :

- homozygous and effected --25% chance

  (1 in 4 chance)

- **A Carrier** ------ 50% chance .

- **Genetically Normal** ------ 25% chance .

WHO IS A VIRAL CARRIER

One who harbors disease organisms in his body without manifesting any symptoms, thus acting as a distributor of infection.

A VIRAL CARRIER'S FATE

- HIV and Hepatitis B & C viruses can remain dormant for months or even years in CARRIERS without showing any symptoms.

- With early diagnosis and treatment CARRIERS of HIV or hepatitis viruses can keep the symptoms under control and reduce the risk of serious complications.

SCREENING FOR HBV

Who is HBV Carrier

- Following an acute HBV infection , which may be sub-clinical, 5-10% of patients will not clear the Virus and will become carrier's of Hbs Ag.

- Carriers are usually discovered incidentally on blood Test either Pre marital examination or routine health check-up or blood Donation.

SCREENING FOR HCV

- 70-90 % of cases found in post-transfusion cases.
- Again mostly found incidentally
- Not easily spread through sexual –contact.

FATE OF HCV –INFECTION

No carrier state found .

- Chronic liver disease --- 70-80 % of cases.
- Cirrhosis of Liver ----- 5% of cases.
- Hepatoma ---------- 15 % of cases

SCREENING FOR HIV

- HIV is a Retrovirus infecting T-Helper cells bearing the CD4 receptors.
- Transmission is sexual --- 60-70% of cases.
- From mother to child ---- 90% of cases.

FATE OF HIV-ANTIBODIES

- Confirmed by Western blot Test.
- Presence of HIV-antibodies gives no indication about disease progression. After exposure to HIV –infected person it may take up to 3months to become positive.
- Consider repeating this test if exposure may have occurred < than 3 months prior to testing.

WHAT WILL HAPPEN AFTER THE TESTS

Consult your Family Physician

What steps a Family Physician should take ?

IN CASE OF CARRIER FOR HEMOGLOBINIPATHIES:

- The future couple should be advised that after marriage your children could suffer from Sickle Cell anemia or Thalassemia.
- The physician will not issue the premarital fitness certificate.
- The decision will be for the future couple whether to go ahead with the marriage or not.

IN CASE OF INFECTION WITH HIV OR HEPATITS VIRUSES:

- The physician will repeat the test before confirming the diagnosis.
- If still positive ; will not issue premarital fitness certificate.
- HIV & HCV Positive are encouraged to avoid marriage– as there is much higher chance to transmit infection to your future spouse.

- In HBV Carriers , the healthy partner is advised to be vaccinated.

- The HIV ,HCV patient will be informed and referred to a Specialty Clinic for Follow-up.

WHAT ETHICAL ISSUES CAN ARISE

- usually premarital screening comes too late for couples to change their opinions ABOUT marriage.

- By this time they are already committed for this relationship.

- **Which Spouse would be affected the Most ?**

Male

Female

Is it a stigma or dilemma for female?

A TABOO FOR FEMALE

- Rejecting marriage on these ground may effect her Social Life .

- Sometimes this stigma may prevent her from ever getting Married .

STIGMA FOR MALE OR FEMALE

- HIV-testing also has far-reaching social impact especially when someone is planning to marry.

- In some communities certain values may clash with the concept of premarital HIV-testing with major issues of confidentiality

What is the Family Physicians Role ?

DISCUSS GENETIC COUNSELING

- Encourage individual or family to obtain information about a genetic condition that may effect them
- They can make appropriate decisions about marriage , reproduction and health management.

DISCUSS CONSANGUINITY :

- Relationships by blood or common ancestry, in which the chances of offspring inheriting a recessive allele for a disease are increased .
- The closer the relationship , the greater the risk.

PREVALENCE OF CONSANGUINEOUS MARRIAGES IN MUSLIM COMMUNITY

- 25-60% of all marriages in Arab regions are consanguineous , with a high incidence of first-cousin marriage.
- In Saudi Arabia , 90% of couples detected as carriers did not follow the advice and went ahead with their marriages.
- Social and familial commitments make it difficult to ask partners to undergo pre marital testing.

Wrong religious beliefs could be obstacles to premarital screening success regardless of education level.

A SUCCESSFUL PRE MARITAL COUNSELING APPROACH

- Education and attitude of the couples to be screened .
- The meaning of the term “carrier Status” should be made known to public long before they get married.

- **Educational programs** about the benefits of premarital examination should target unmarried males , so they can make informed choices about unmarried females and consanguineous marriages.

- **Active involvement of policy makers** to establish and implement appropriate screening techniques and policies.

- **“Solution focused”** pre marital counseling:

Helping couples to develop a shared vision for the marriage.

- Solution- oriented interventions .

- Solution -oriented questions and feedback

- Approach adopted by the counselor . Educate all members of the screening Team (lab technologist; nurse practitioners; physicians; counselors; out-reach workers ; social workers.)

- There should be good cooperation between community and religious leaders, schools, parents, and health professionals.

AVAILABLE CHOICES AFTER POSITIVE TEST RESULTS :

- Avoidance of marriage.
- Those who proceed can be offered reproductive options after prenatal diagnosis.

CONCLUSION

Any mandatory screening program does have the potential to succeed as long as the TARGET POPULATION is clearly identified and all ethical issues (confidentiality of results) ,religious , cultural and human rights and concerns about post-diagnostic management are fully addressed.


Thank You!