Genetic Consultation before marriage

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Abstract: A disabled baby is born every eight minutes. The birth of a disabled baby in families imposes huge costs on the family and society and endangers the health and safety of families, considering that prevention always precedes treatment and it costs less, genetic counseling before marriage is an effective measure. It is to improve the level of health and strengthen the foundation of the family. So far, about sixteen thousand genetic diseases have been known. Genetic diseases have a wide variety in different countries and regions, and in our country, due to multiple family and ethnic marriages, it has a high prevalence. As a result, genetic counseling is one of the priorities of society. Genetic or hereditary diseases are considered a special disease that can affect the whole family for years. Most of the genetic diseases are incurable or its treatment is very expensive and involves a lot of pain Some of these diseases also cause early death, which can have a negative effect on the family's spirit. Genetic counseling before marriage, whether related or non-relative, is necessary because the risk of genetic abnormalities in non-related marriages still exists with a lower frequency than in family marriages. About half of the various disabilities such as: blindness, deafness, mental retardation, repeated miscarriages, short stature, growth delay, deformities and birth defects, infant death, infant paralysis, hereditary cancers are due to genetic disorders.Genetic counseling can reduce the percentage of disabilities caused by genetic diseases caused by people's marriage or consanguineous marriage. In fact, the purpose of the current research is to provide useful and scientific information about family marriages and the occurrence of genetic diseases and to support families at risk of having children with genetic disorders with families who currently have children with birth defects or genetic disorders. In this article, genetic counseling before marriage and its importance in preventing various hereditary human diseases have been investigated, so that reliable scientific books and articles have been used to collect the information.

Keywords: genetic counseling, family marriage, genetic disorders, disabilities and diseases, birth defects, couples

INTRODUCTION

The Holy Qur'an says: One of the signs of God's power and mercy is that He created your spouses from your own gender so that you can feel at peace with them, and He placed love and mercy between you. There are signs for those who think about research in this matter. The family is the unit that constitutes the Islamic society and marriage is the foundation of this unit. Genetic counseling is one of the health services that are provided to support and inform people who are suffering from or are at risk of suffering from a genetic disorder or disease.

Increasing the awareness of couples before marriage and on the eve of marriage is one of the very important measures to strengthen the foundation of the family. Genetic and health education and counseling before or during marriage is a good opportunity to raise the necessary content in various fields of couples' relationship, focusing on health and wellness in different physical, mental, social and spiritual dimensions, and expressing reproductive health issues that according to the opinion and behavior of young people in The threshold of marriage is influential.

Marriage is a type of contract and commitment in such a way that a person becomes a partner in the life of another person and in turn makes another a partner in his life so that the human race continues, but! Consanguineous marriage is common in our country and different statistics have been presented in different studies in this regard. Preventing the birth of disabled babies has always been one of the goals of scientists. The possibility of disabled children being born, especially those with recessive hereditary diseases, is more likely in consanguineous marriages than in alien marriages.

Considering the high prevalence of consanguineous marriage in our country, the present study was conducted with the aim of investigating genetic counseling before marriage. Genetic counseling means providing information and support to families at risk of having a child with genetic disorders or families that currently have members with birth defects or genetic disorders.

Considering that genetic counseling before marriage plays a significant role in preventing the occurrence of genetic or hereditary abnormalities and since each congenital abnormality puts a lot of economic, social, psychological, and emotional pressure on families and, as a result, on society. therefore, it is necessary to plan carefully to raise the level of public awareness about the necessity of genetic counseling before marriage.

The purpose of genetic counseling is to provide scientific information to raise the awareness of young people about hereditary diseases caused by family and

consanguineous marriages, and to support young people and families at risk of having children with genetic disorders or families that currently have children with diseases. are genetics to prevent the spread of genetic diseases and disabilities.

Many cases of mental retardation, genetic abnormalities and hereditary diseases can be predicted, and by considering the laws of inheritance and genetic counseling and performing various tests before family marriages, it is possible to prevent the birth of a significant number of affected children. prevent these diseases, of course, in this regard, ethical considerations are also very important and should be considered.

There is a risk of having a baby with genetic diseases in every pregnancy, and this risk is multiplied in a family marriage due to the high genetic similarity. Of course, there is no special surname in our family marriages, provided that genetic counseling is done before marriage and there are no known genetic diseases or mental retardation or major abnormalities in the family tree and close relatives of both sides.

Various scientific researches and tests have shown that the consanguinity factor is involved in the possibility of passing similar genes from two related parents to their children, which is common in consanguineous marriages, in the creation of various hereditary and genetic abnormalities. Congenital anomalies are an important cause of death, hospitalizations, family problems and disabilities in society. Congenital disorders are a group of anatomical or structural disorders that are present at birth or appear in the future.

These abnormalities make up 3-6% of live births and their causes are classified into three main groups: genetic, environmental and environmental-genetic, and the most effective factor in the occurrence of congenital abnormalities are genetic causes. Mother’s suffering from some diseases, excessive use of drugs, chemical substances and some special food items also have an effect.

Understanding genetic counseling: Genetic counseling is actually a branch of medical genetics that examines the possibility of genetic diseases and provides appropriate solutions to prevent the recurrence of hereditary diseases with the aim of a healthy future and generation. Genetic counseling is the communication between the genetic specialist (consultant) and the parents or a family member about a genetic disease. This counseling leads to guidance of the family members regarding the disease, knowledge of the available treatments, and familiarization with the result of the disease from a genetic perspective, the possibility Its reoccurrence in the family and knowing the ways of prevention and laboratory methods to diagnose the disease. With genetic counseling, it is possible to choose the best choice regarding the upcoming actions based on the condition of the disease, the social or economic status, and the mental and psychological conditions of the family and relatives. Genetic counseling services play an important role in reducing these diseases.

Disease diagnosis is very important in genetic counseling. Diagnosis is given by taking the family history of the disease, examination and, if necessary, laboratory, biochemical and cytogenetic tests. Pedigree drawing helps to diagnose the disease. A genealogy is a summary of the hereditary characteristics of the members of a family, which is recorded on paper. In relatives, due to genetic similarity, the possibility of hereditary diseases increases.

This is more common in close relatives. The amount of common genes depends on the degree of kinship. The probability of gene similarity in siblings is 50%, between each person with his second degree relatives ie uncle, aunt, midwife, and aunt is 25% and between a person and the children of his second degree relatives is equal to 5.12%.

After the diagnosis, the risk of disease occurrence in the children of couples who are diagnosed as carriers of the disease is calculated, and the nature of the disease, treatment methods, available social support, and methods of preventing the occurrence of the disease are discussed with the couple. In genetic counseling, the necessary information is given to the couple and they are helped to make informed and responsible decisions. Because they have to make decisions that they have to live with the consequences for the rest of their lives.

In genetic counseling, health workers are responsible for identification, referral, training and support, and all people who need specialized counseling should be referred to a genetic specialist.

The best time to do genetic counseling is before marriage. In genetic counseling, patients and families who are exposed to a hereditary disorder, learn about the results of that disease, the possibility of developing or transmitting the disease to their children, and the ways to prevent it.

Genetic counseling consists of several important parts. Disease diagnosis is the most important part of genetic counseling, which is possible with the help of family history, Pedigree drawing, and special tests such as biochemical, hormonal, molecular, and cytogenetic. Calculating the recurrence risk of causing disease in other family members and notifying the patient and others and explaining the upcoming methods such as treatment, prevention, prenatal diagnosis and supportive measures are the other stages of this process.

Today, in the field of health and safety, the term genetic counseling is very popular. Or, if we say it in other words, genetic counseling, including health and wellness services, is used to support and inform people who have or are at risk of suffering from a genetic disorder or disease. are located, it is provided. During counseling, genetic specialists can discuss with an individual or a family about the possibility of certain genetic conditions or the diagnosis and confirmation or rejection of a genetic disorder. Advancement of health care, nutritional and treatment facilities

has reduced diseases and death from environmental factors, such as infections, food shortages, physical factors such as heat and derma to a minimum.

But due to the lack of treatment in most diseases

Heredity, suffering and death caused by hereditary factors occupy a large place, especially in children's diseases. In such a way that 30% of children are in intensive care and 40-50% of deaths are due to hereditary factors and genetic diseases.

Today, the best way to reduce these types of diseases is to inform parents and prevent the birth of defective children, which is possible through genetic consultation, especially before marriage and genetic examination before the birth of the fetus. Molecular genetic specialists. , clinical and genetic counselors (those who are experienced in the field of medical genetics and counseling and have an official license to do so from the Ministry of Public Health) and other clinical professionals such as nurses, psychologists and social workers who are trained in the field of genetics, the necessary conditions for They have a genetic mesh to give urea.

Picture No.1: A specialist and genetic counselor can determine whether genetic test is necessary by taking the history and necessary information and drawing the family tree of couple

Genetic counseling is actually a branch of genetics that examines the possibility of genetic diseases and provides appropriate solutions to prevent disease recurrence with the aim of a healthy future generation. The marriage of two non-relatives also has a 2-3% risk. This probability is higher in marriage with relatives and it varies according to the degree of kinship. Although most genetic experts do not see any obstacle for the marriage of relatives of the third degree or higher, provided that there is a family history free of hereditary diseases, but if possible, it is better to consult with a genetic counselor before marriage in any case. One of the main goals of the genetic test is to determine the risk of contracting or repeating a hereditary disease in each pregnancy.

The purpose of genetic counseling can be one of the following: Helping to better understand the genetic disease, symptoms and diagnostic methods, better prediction and control of disease symptoms.

Preventing or repeating the disease, predicting and better controlling the symptoms of the disease

Proposals and suitable solutions such as prenatal diagnosis according to the principles, values and beliefs of the family

Another main goal of genetic counseling is to determine the risk of occurrence or recurrence of a hereditary disease. All people who have any of the items mentioned in table number (1) in themselves or in their ancestors, should undergo genetic counseling before deciding to get married or before having children, during pregnancy, or after giving birth.

No.	Cases requiring genetic counseling
1	Family marriage
2	Pregnancy at 35 or order
3	Sterility
4	Congenital defects
5	Intellectual disability
6	Maturation
7	The presence of genetic Diseases in family
8	Pregnant Mother against mutagenic agents
9	Cancer repeating some diseases in families such as -Diabetes-hypertension-Heart diseases

Chart 1 shows cases that require genetic counseling.

The importance of genetic counseling: Family marriage is a common thing in our country and different statistics have been reported in this regard in different regions of the country. The consequences of family marriage, in terms of children's physical and mental health, are clear and obvious in today's medical knowledge. Genetic consultation before marriage Genetic consultation before marriage is one of the important issues in all human societies, therefore, in most human societies, careful planning has been done for it. In the pre-marriage genetic counseling program, couples will learn about diseases and disabilities caused by genetic diseases and understand its importance. This will help improve the health of couples. Considering the importance of genetic counseling, it is better for couples to be educated in this field before deciding to get married, and higher education is suitable for this education. Researchers suggest future study. Negar should be done to determine the effectiveness of premarital genetic counseling program.

Serious attention to detailed genetic counseling before marriage can reduce the burden of hereditary diseases and disabilities. Knowing the principles of genetic counseling before marriage and the correct and scientific guidance of families is necessary for all medical groups, especially general doctors, nurses and especially pediatric specialists.

The importance of genetic counseling as the main part of the management of hereditary diseases should be taken into account by all doctors because it can play a vital role in the diagnosis of the disease, show the heredity of a disorder, provide information about the diversity and the way the disease occurs, and can plan the inheritance of the disease. reveal By conducting genetic counseling, the risk of infection for other family members can be estimated, and based on that, suitable

treatment, prevention and counseling methods can be considered for the patient and his family. Although the genetic diagnosis of diseases may not be very useful for the affected person, but by doing it, it is possible to prevent the occurrence of similar cases in the family.

Another importance of genetic counseling is that it can play a vital role in the diagnosis of a disease, show the heredity of a disorder, provide information about the diversity and the way the disease occurs, and can reveal the inheritance plan of the disease. By carrying out genetic counseling, the risk of infection for other family members can be estimated, and based on that, appropriate treatment, prevention and counseling methods can be considered for the patient and his family. Although the genetic diagnosis of diseases may not be of much benefit to the affected person, but by doing it, it is possible to prevent the occurrence of similar cases in the family.

Genetic counseling before marriage

Chart 2 The importance and advantage of genetic counseling, which shows the main part of managing genetic diseases in families, which can play a vital role in diagnosing genetic diseases and helps a healthy society

As the number of genetic diseases increases day by day, the necessity of doing genetic counseling before marriage to prevent these diseases has become doubly necessary. Today, the latest facilities and various software are used for this purpose. Considering that genetic counseling before marriage plays a significant role in preventing the occurrence of genetic or hereditary abnormalities and since each congenital abnormality puts a lot of economic, social, psychological, and emotional pressure on families and, as a result, on society. Therefore, it is necessary to plan carefully to raise the level of public awareness about the necessity of genetic counseling before marriage. One of the causes of mentally retarded children is genetic disorders

and deficiencies, the occurrence of these cases increases in family marriages and kinship ties. In family marriages, the genetic similarity of the couple can become a problem, although this similarity depends on the type of genes that the person passes on to the next generation. In our country, family marriages are more common in villages and towns than in urban areas, and this is due to the cultural contexts and rich ethnic relations that govern these areas. Many cases of mental retardation as well as other genetic abnormalities and hereditary diseases are predictable And by considering the laws of inheritance and genetic counseling and performing various tests before family marriages, it is possible to prevent the birth of a significant number of children with these diseases, which of course, in this regard, ethical considerations are also very important. Should be considered.

Applications of genetic counseling

Genetic technologies can be used in the treatment and cure of diseases, considering whether the disease has a genetic cause or not, genetic counseling can be a part of preventive treatment methods. The life of Sani was related to health and illness. Although people have long been aware of the difference between people and the prevalence of certain diseases in some families

But the scientific basis of these observations was only discovered during the last 140 years. In general, nowadays, the role of genetic counseling and genetic specialist has become very prominent and effective in all fields of medicine and medicine. Disease affects families and helps to develop a healthy society. Genetic diseases usually affect the individual and the family throughout life. These diseases are usually untreatable or have high costs. These diseases can be accompanied by excruciating pain and cause premature death of people. Medical genetics is rapidly progressing and influencing other special sciences such as medicine. New developments have provided the possibility of quick, accurate and affordable diagnoses for patients and families. The genetic counselor tries to consult with the family to examine the patient’s desire to perform the required fertility tests, the cause of the disease, the mode of inheritance, the level of risk for the next pregnancy, the possibility of risk for marriage, and the possibility of a sibling being a carrier. brother or parents to determine a genetic disease and the like and inform the family about the available diagnostic methods and necessary measures

Why someone may need genetic counseling?

Individuals or families concerned about the possibility of inheriting a genetic disorder are those who benefit from genetic counseling. Reasons that may refer a person to a genetic counselor or molecular geneticist or other genetic specialist:

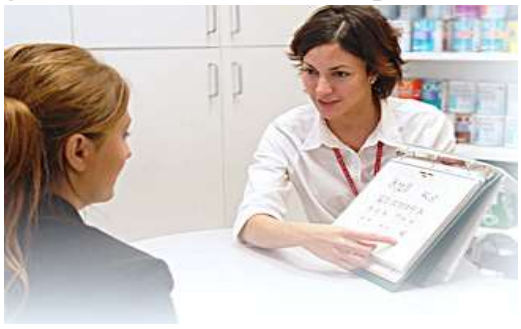
A history of an individual or family with persistent genetic disorders, birth defects, chromosomal abnormalities or hereditary cancers. Frequent miscarriages or more than two cases, stillbirth or dead child. A child with a known genetic disorder,

congenital disorder, mental retardation or delay. A woman who is pregnant or trying to become pregnant at or above the age of 35 (chromosomal disorders often occur with a higher proportion of children born to older women.

Abnormal test results that indicate the possibility of chromosomal or genetic disorders.

Increased chance of passing on or developing a genetic disorder based on specific backgrounds and racial background. When families with blood relations are about to have a child (for example, uncle's son and uncle's daughter), the child can be exposed to a high chance of suffering from a certain genetic disorder Also, genetic analysis is very important in deciding to perform genetic tests. An appointment with a geneticist is helpful even when genetic testing is not available. To obtain more information about the reasons for the need for genetic counseling:

The genetics labs in Washington University have a list of details and reasons for the need for genetic testing and information about provided by genetic counselors



Picture No3 is guiding the doctor and genetic counselor to change the number of chromosomes, examine the individuals chromosomes in terms of number and structure to diagnose more than 200 types of diseases.

Issues that arise during genetic counseling: A genetic counseling, while informing and providing support, responds to the questions and answers of the client's disorders. Determining whether a disorder has a genetic component or not is determined by a genetic specialist by asking about the clinical history and details. The person's family (medical records file / emergency medicine or long-term hospitalizations).

A geneticist may prescribe specific clinical examinations or tests at his discretion.

If a genetic disorder is detected in a person, a geneticist will provide information about the diagnosis process, heredity, the chance of passing that disease to the next generations, and diagnostic and treatment options.

A geneticist during consultation should:

• Explain and interpret complex genetic terms and information.

• Help a person to better understand and make decisions about his health and pregnancy status.

• Respect the beliefs, traditions and feelings of each person.

During the consultation, the geneticist should not:

• Give each person their opinion to make a decision.
• Give advice to couples to have children.
• To advise a woman to continue or terminate her pregnancy.
• Impose diagnostic tests for a genetic disorder.

Various stages of genetic counseling:

Genetic counseling is important in all stages of life, but the following classification is common.

Genetic counseling before abnormalities occur: Although nowadays most of the consultations are done after the occurrence of abnormalities in children, but it will be more effective if it is done before the occurrence of abnormalities. For this purpose, we must screen heterozygous people and warn them that if they marry heterozygous people for the same gene, the risk of having children with genetic abnormalities will be more severe.

The development of appropriate techniques for diagnosis and increasing the level of awareness about the effect of these methods on public health has led to the initiation of vector detection programs for some diseases. Most programs are optional for families and are limited to populations where the frequency and severity of a particular disease is high. For example, there are programs to diagnose sickle cell anemia, glucose deficiency, thalassemia, and TAX diseases. Heterozygotes marry late and have children with genetic abnormalities.

Little information is available about the psychological effects of identifying defective gene carriers with the social pressures it can have on a person. For example, evidence shows that African-Americans who carry the gene for sickle cell anemia are discriminated against. To insure heterozygous people, a higher amount is charged or they are not insured at all. In addition, some people who are carriers of this disease are not allowed to enter the United States because the stress of flying at high altitudes and the low amount of oxygen causes the blood erythrocytes to die as a whole, and the lives of the carriers and others are at risk. Every genetic diagnosis program should be accompanied by general education programs and the psychological and social effects of these programs should be explained at the beginning of the course. To effectively use genetic counseling services, doctors, couples, and the general public should be trained.

A) Thalassemia is an anemia disease that is controlled by an autosomal gene, and when the gene is homozygous (thalassemia major), the disease is less severe and death occurs in childhood. In the case of heterozygous disease, the disease is less severe (thalassemia minor). Carriers can be identified at the respective centers.

B) This disease is prevalent in Cyprus and Sardinia and among the communities around the Mediterranean.

Genetic counseling after abnormality occurs

Choosing a method to prevent the recurrence of genetic abnormalities depends on the degree of repeatability, its intensity, as well as the attitudes and cultural environment of the couple. The method used must be accepted by the couple and be legal. Considering these issues and limitations, the following methods are suggested. Preventing pregnancy although none of the methods of preventing pregnancy are completely effective, modern methods are more effective and are accepted by most cultures. Abortion this method is recommended in cases where it is determined before birth by amino synthesis or other methods that the fetus has a genetic or chromosomal abnormality.

Sterilization of this method is avoided in men or women, the original method is non-fertility and the death may be irreversible. This work is usually done when the reproducibility rate for abnormalities is high.

A: A 32-year-old woman has 3 children, 2 healthy boys and a 6-year-old girl who spends most of her life in the hospital and is suffering from turquoise cysts. This disease is controlled by a single autosomal recessive gene. Using this information, what advice can the counselor give about the risk of pyrocystic disease in future children?

What is the probability that his healthy sons are carriers of the recessive allele for pyrocystis?

B: The first healthy child of this family was Zal. What information can be given about having Zal’s children in subsequent pregnancies?

DISCUSSION AND CONCLUSION

In today’s world, genetic knowledge is considered as an advanced and strategic science due to its capabilities and applications. In recent years, the diverse applications of genetic science in various fields have attracted the attention of various world communities. Scientific discoveries in this field have been going on unprecedentedly, which has strengthened human understanding of the mechanisms of the inheritance phenomenon. Genetic counseling before marriage can be mentioned among the necessities of this field to solve the problems of human society. Many genetic diseases are transmitted through the transfer of related genes from father and mother to children, and these diseases can be prevented with genetic counseling.

Premarital genetic counseling is a process that evaluates all the health and illness records of family members, and for this purpose, premarital genetic testing is prescribed. It is an effective measure to diagnose genetic diseases and prevent the birth of disabled children suffering from genetic diseases.

Based on the findings of the present research, it is possible to understand the relationship between consanguineous marriage and its types in the probability of occurrence of disabilities. Following family marriage, the possibility of children suffering from physical, motor, and mental disabilities increases. Among consanguineous marriages, 3rd degree consanguineous marriage is more dangerous

than other cases in terms of disability transmission. Therefore, it seems necessary to make young people aware of the dangers of family marriages and carry out genetic counseling before marriage in these cases.

Despite the point of view of medicine and genetics on the prohibition of these marriages due to the high probability of occurrence of disability traits, this article emphasizes on highlighting the role of genetic counseling to find families at risk and explain the probability of occurrence of family diseases and testing carriers in possible cases.

Considering the importance of the issue and its effect on the health of the family and society, to people who intend to get married and with more emphasis to people who have hereditary diseases in their family and also those who are expecting children or are worried about recurrence There is a hereditary disease in the family, they should consider the following suggestions

• Finally, I suggest to all the interested and readers to use the content of this practical article as much as possible to learn about genetic counseling for diseases for which there is no cure.

• Before getting married, young men and women should get information about each other's family tree, records of genetic disorders, birth defects.

• Knowing the principles of genetic counseling before marriage is essential for all young people because couples get to know the problems of diseases and disabilities caused by genetic diseases and reduce the burden of diseases and disabilities.

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