There are between 4,000-5,000 diseases and disabilities, known to be inherited. From poor eyesight and migraines to a tendency to have spontaneous abortions, forms of mental abnormality to diabetes, hypertension, infertility, albinism and even cancer. Because most are caused by recessive genes and due to close relative marriages, many recessive genetic diseases acquire the tendency to be dominant which consequent into low profile of health inheritance.
By ***Kiran Khan***

Problems in int family marriag

All life forms — plant and animal, including man develop their traits and characteristics, physical and mental, through the working of the genes inherited from their parents. Whether that be the fragrance of the rose, sharpness of chili, purgativeness of guava, feathers of peacock, poison of snake, eyesight of eagle, malice of camel, intelligence of dog, stubbornness of man, etc. Of course, there is lot of variation. Some 'breed' and 'races' are more so, and even within the same group some individuals are more intelligent than the others are.

Similarly persons are born normal or handicapped, disabled, depending upon the inheritance of dissimilar or similar genes from their parents. No amount of good food or better environment or best schooling or teaching can make a genetically sick person healthy or a slow mind a sharp one. We are in the habit of launching campaigns, arranging seminars and raising funds for the poor, disable children but how one gets disability and the prevention of disability is an important aspect that has been totally ignored.

Disability is very much preventable. Before discussing ways and means of prevention of disability, let us enumerate its causes. In a nutshell, disability can be classified into three types — physical, mental and sexual and its causes are either acquired or inherited. Acquired disability arises through communicable diseases or through accidents. Communicable diseases now are more common in the third world where people live in deprived social environment and bad sanitary conditions. Of a large number of communicable diseases some like leprosy, river blindness, polio and trachoma are disabling diseases. Accidents, if not lethal cause serious disability. They occur through lack of proper precautions and safety measures and in this category the biggest single

mechanism puts into work, let us understand by an example: Aliya and Shahzad are first cousins, their mothers being sisters. Shahzad has inherited a recessive genetic disability from either his paternal grandparents or maternal grandparents. Because he has also inherited a normal, dominant gene, he does not show any sign of the disability. If the gene for abnormal development came from his maternal grandparents, there is a chance that Aliya has also inherited this recessive gene from them. Infact, there is a 1 in 8 chance that she is a carrier. If Aliya and Shahzad marry, as their mothers plan, they will have 1 in a 4 chance of having an affected child.

But the family has not had a genetic analysis done and no one knows from which side they have inherited the gene for the disability. So one cannot say for certain that the problems come from the shared maternal grandparents or that Aliya is definitely a

if they have 31 children all will be normal; they may be unlucky and that special 1 in 32 could be their first and their second and their third — or by having only two children they reduce the chance of striking the unlucky number and both children turning out normal.

It all seems as the guess work since no statistical information is available to any disease, whatever we say is just obviously the guess work but evidences prove this guess work the reality later.

In Genetics, the prevention is in fact the only option. There is nothing we can do. It's just like an air conditioner thermostat. If it is not working you throw it away and get a new one, change it. But in the case of man you cannot do that. What is the most important event out of 70 billion? A man and a woman can produce 70 billion different types of children provided they are not related at all. This figure of 70 trillion comes from permutation combinations of

and 23 chromosomes of father carrying thousands of genes responsible for all the traits — good or bad, healthy or disease, desirable or undesirable makes you what you are. Perhaps we may call it 'Kismat'. These 23 pairs of chromosomes — this we can not improve. We can only destroy it, if the mother is not getting proper food but there is no way to improve it.

But generally how we treat this kind of situation in Pakistan, believing that it is written in our fate and it would surely be happened whatever the circumstances may be. Take the case of a family with two children — a son, born normal but who lost the ability of walking by the age of seven years and a daughter born deaf-mute. The parents consulted physicians, hakims, homeopathy and of course faith healers and were of the firm opinion that an evil spirit had caused this misfortune. They were extremely worried and used to visit their 'pir' regularly

lack of proper precautions and safety measures and in this category, the biggest single disability contributor is traffic accidents.

Let us come to the inherited disability, which is considered as the Evil Spirit, the subject of this article. That area is just beginning to be explored. Coming to the hard fact straightforvardly, 60% marriages beween cousin and close relatives have been held responsible for contributing a major share in this respect. I know it sounds strange but it's true, how the whole

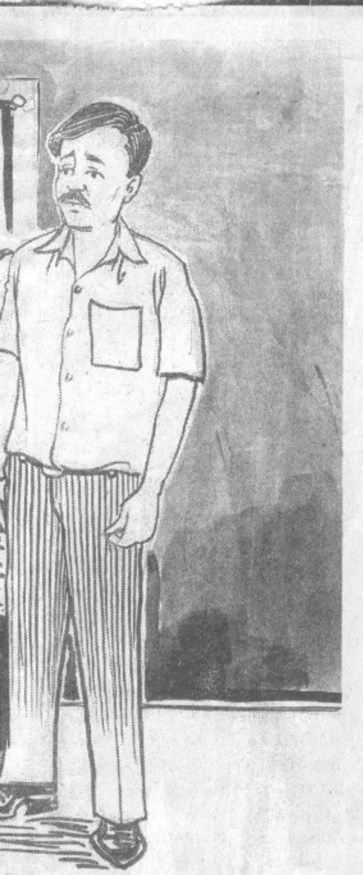
shared maternal grandparents or that Aliya is definitely a carrier. Taking all this uncertainty into account, Aliya and Shahzad still have a 1 in 32 chance of having a child affected by inherited disability. If Shahzad marries outside the family and the problem gene only occurs in 1 person in 100, he will have a 1 in 400 chance of having a disabled daughter or son.

One in 32 is of course only the mathematical chances (probability) of Aliya and Shahzad producing an affected child. This does not mean that

figure of 70 trillion comes from permutation combinations of the 46 chromosomes of mother and 46 chromosomes of father out of which each will be contributing only 23 and this means that due to replacement of 1 chromosome of the pair with the other would have changed the genetic constitution and the resultant of the spring would not have been you but your brother and sister, conceived at that moment.

We may further explain it by saying that the combination of 23 chromosomes of mother

were extremely worried and used to visit their 'pir' regularly for blessing to get a normal son. Imagine their happiness when they got a son! Celebrations were made, money was lavishly spent and the pir came personally to bless the son. Alas! Their rejoicing were short lived. Soon it became apparent that the child was microcephalic and mentally retarded. They are a miserable family now. Neighbours do not allow their children to go near their house for fear of 'evil spirit'. The family curses its fate. Yes, Fate



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it is, but scientific. This fate is written in the language of genes on chromosomes at the time of conception, which determines whether the baby born will be male or female, beautiful or ugly, genius or fool, normal or abnormal, able or disable.

I may quote another example of a family where the family has lost a couple of male children at the time of circumcision and where the pir of the family ascribed it to the 'saya' of a evil spirit on the family of female lineage. According to the pir all the brothers died of the curse of saya leaving only four sisters. But scientific explanation of the death of male children during circumcision was that the grandmother was carrying a gene for hemophilia in which the blood does not clot and close the wound on any accident. This disease is transmitted from female to son who dies of hemophilia of accident but the gene does not show its effect in females.

consequent into low profile of health inheritance. The chance of hidden genetic and inherited diseases to become prominent in 1\4 among non-cousin.

Research has proved that 25% children whose parents are cousins are prone to acquire mental, sexual and physical disorder. It has also noted that pregnancy wastage (miscarriage, abortion) was twice as high among first cousin couples than among those who are not related.

A special atmosphere is as well necessary for grooming of healthy inherited characteristics. Many refined inherited qualities do not find a chance to peep out just because of poor atmosphere and similarly many inherited mental diseases can be geared by good, healthy atmospheric condition. For example, a person who has the oncogene (responsible for cancer) and lives where there is no environmental factors on which this gene can act, nothing will happen. But if a woman is a non-smoker but has the oncogene and is married to a man who is a smoker but with no onco gene, she will be one to develop cancer because she has become a passive smoker due to her husband. So environment is significant but it can not alone produce many of these medical problems.

There is a rule of thumb: don't marry your first cousin or blood relatives or if possible not the same caste. If first cousin absolutely insist on marrying each other, then they don't have children or at least go for consultation about the chances of having a disabled child. Consultation which is now being done in Pakistan, involves amniocentisis, a process in which cells are removed from fluid around the pregnant mother's womb and checked for abnormalities. All chromosomal and some genetic disabilities can now be detected in this way and the mother is given the choice of terminating the pregnancy if a problem is discovered. More generally, the best age to have children is between 23-27 after which genetic and chromosome problems increase. So prevention is much easie[r] better and cheaper than c[...] and management in cas[...] genetic disabilities.

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