Consanguineous Marriage: A Peril for Coming Generation

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Editorial

Consanguineous marriage is a marriage between two individuals who are related as second cousins or closer. Consanguineous marriages, traditional and honorable in many parts of the world, are more common in societies with closed economy and societies living a nomadic life [1]. Many religious, cultural, social, political, and economic factors attract the families to prefer consanguineous marriages. More than one billion people of the world are living in communities with preference of consanguineous marriages [2]. Consanguineous marriages may cause increase in autosomal recessive inherited disorders. Plenty of scientific studies in international health literature designate the consanguinity as associated with hundreds of genetic disorders.

Autosomal recessive disorders have been observed more than twice as common in consanguineous marriages as in non-consanguineous [3]. Consanguineous marriages increase the genomic homozygosity in the offspring which is mainly responsible for promoting recessive disorders. Consanguineous matings may pool deleterious lethal alleles in homozygous form to progeny which may cause prenatal, neonatal and child morbidity or mortality [4]. Meta-analysis technique has also supported the increment of disease risk in progeny [5]. Most important medical inference of consanguineous marriages is the increased birth rate of infants with inherited genetic disorders [6,7]. Increased rate of spontaneous abortions, childhood deaths, cerebral palsy and Mediterranean fever have been reported to be high in consanguineous marriages [8]. Rate of birth defects is reported to be substantially high in cousin marriages as compared to the general population [9]. Consanguninity is considered to be an important risk factor for several inborn errors of metabolism and structural deformities [10]. Higher rates of morbidity and mortality have been observed in such cases. First cousins marriages illustrate a 1.5 to 3% increased risk of having a child with inborn errors of metabolism while the double first cousins show twofold risk than of first cousin matings.

Some reports suggest the association of consanguinity with inherited immunodeficiency disorders. Relationship of cousin marriages with some other inherited disorder like slow birth weight, protein-C and protein-S deficiency, beta-thalassemia, children’s hypertension and phenylketonuria has also been evidenced by many researchers [11]. Hearing loss, the most common sensorineural illness in developed countries [12] has been proven to be linked with consanguninity. Numerous diseases related to vision impairment have been evidenced to be effected by consanguninity. Some studies have linked consanguninity with increased incidence of some infectious diseases like TB and hepatitis. Increased infection risk has also been found to be associated with consanguninity in animal populations [13]. The prevalence of common adult diseases such as diabetes mellitus, cancer, blood disorders, mental disorders, some heart diseases, asthma, gastro-intestinal disorders, hypertension, hearing deficit, G6PD and common eye diseases has also been observed to be influenced by consanguninity. Significantly higher rates of epilepsy have been recorded among family members with consangunuous marriages [14]. In a recent study, parental consanguninity has been proved to be associated with early age of onset of schizophrenia [15]. Relationships between consanguninity and complex multifactorial disorders of adulthood have not been studied significantly. Only a few reports support the existence of association of consanguninity with complex multifactorial diseases. Effects of consanguninity on fertility are controversial. Some studies relate consanguninity with infertility; others deny existence of any relationship between them. Both positive and negative associations with consanguninity have been reported in breast cancer and heart diseases.

Prevalence of consangunuous marriages is high in those regions of the world which lack education and awareness. Strategies and plans should be devised to raise the education level and social awareness about consangunuous marriages. Participation of youth and parents in awareness campaign should be assured to increase its effectiveness. Genetic consultancy may play imperative role in those populations where consangunuous marriages are unavoidable. Epidemiological studies and scientific surveys are necessary to explore possible relationship of consanguninity with other disease. Biomedical research should have commitment to integrate genomic medicine into future health services. Premarital screening for determination of genetic risks in progeny may help guide to have better matrimonial choice within family. For early diagnosis and management prenatal and postnatal screening programs for genetic diseases would...
be beneficial in the regions of high consanguinity rates. Consanguineous communities, at high risk of diseases, should be identified and debate on consanguinity related cultural and religious beliefs should be promoted.

References