

Consanguineous Marriage: A Peril for Coming Generation

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Received date: October 23, 2017; Accepted date: October 24, 2017; Published date: November 1, 2017

Citation: Bhinder MA (2017) Consanguineous Marriage: A Peril for Coming Generation. J Genet Disord. Vol. 1 No.1: 08.

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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's 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]. Consanguinity 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 consanguinity. Numerous diseases related to vision impairment have been evidenced to be effected by consanguinity. Some studies have linked consanguinity with increased incidence of some infectious diseases like TB and hepatitis. Increased infection risk has also been found to be associated with consanguinity 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 consanguinity. Significantly higher rates of epilepsy have been recorded among family members with consanguineous marriages [14]. In a recent study, parental consanguinity has been proved to be associated with early age of onset of schizophrenia [15]. Relationships between consanguinity and complex multifactorial disorders of adulthood have not been studied significantly. Only a few reports support the existence of association of consanguinity with complex multifactorial diseases. Effects of consanguinity on fertility are controversial. Some studies relate consanguinity with infertility; others deny existence of any relationship between them. Both positive and negative associations with consanguinity have been reported in breast cancer and heart diseases.

Prevalence of consanguineous 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 consanguineous 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 consanguineous marriages are unavoidable. Epidemiological studies and scientific surveys are necessary to explore possible relationship of consanguinity 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

1. Nar MŞ (2012) Tibbi Antropoloji: Akraba Evliliklerinin Patolojik Etkileri. Ankara Üniversitesi Dil ve Tarih-Coğrafya Fakültesi Dergisi 52: 219-238.
2. Hamamy H (2012) Consanguineous marriages. J Community Genet 3: 185-192.
3. Hoodfar E, Teebi AS (1996) Genetic referrals of Middle Eastern origin in a western city: inbreeding and disease profile. J Med Genet 33: 212-215.
4. Tadmouri GO, Nair P, Obeid T, Al Ali MT, Al Khaja N, et al. (2009) Consanguinity and reproductive health among Arabs. Reprod Health 6: 17.
5. Bittles AH, Black ML (2010) Consanguinity, human evolution, and complex diseases. Proc Natl Acad Sci U S A 107 (Supl 1): 1779-1786.
6. Palombo F, Al-Wardy N, Ruscone GA, Oppo M, Kindi MN, et al. (2016) A novel founder MYO15A frameshift duplication is the major cause of genetic hearing loss in Oman. J Hum Genet 62: 259-264.
7. Darr A, Small N, Ahmad WI, Atkin K, Corry P, et al. (2016) Addressing key issues in the consanguinity-related risk of autosomal recessive disorders in consanguineous communities: lessons from a qualitative study of British Pakistanis. J Community Genet 7:65-79.
8. Özpulat F, Kabasakal E, Taşdelen Baş M (2017) Adolescents' opinions and thoughts about consanguineous marriages: A Turkey sample. J Hum Sci 14: 105-112.
9. Stoltenberg C, Magnus P, Skrandal A, Lie RT (1999) Consanguinity and Recurrence Risk of Birth Defects: A Population-Based Study. Am J Med Genet 82: 423-428.
10. Al Bu Ali WH, Balaha MH, Al Moghannum MS, Hashim I (2011) Risk factors and birth prevalence of birth defects and inborn errors of metabolism in Al Ahsa, Saudi Arabia. Pan Afr Med J 8:14.
11. El Shanti H, Chouchane L, Badii R, Gallouzi IE, Gasparini P, et al. (2015) Genetic testing and genomic analysis: a debate on ethical, social and legal issues in the Arab world with a focus on Qatar. J Transl Med 13: 358.
12. Hilgert N, Smith RJ, Van Camp G (2009) Forty six genes causing nonsyndromic hearing impairment: Which ones should be analysed in DNA diagnostics? Mutat Res 681: 189-196.
13. Lyons EJ, Frodsham AJ, Zhang L, Hill AV, Amos W, et al. (2009) Consanguinity and susceptibility to infectious diseases in humans. Biol Lett 5: 574-576.
14. Jain S (2011) Consanguinity and inherited epilepsies. Neurol Asia 16 (Supplement 1): 11-12.
15. Fatima W, Mahmood S, Hasnain S, Rana NH, Khan NS, et al. (2017) Parental consanguineous marriages are associated with early age of onset of schizophrenia in a Pakistani cohort. Int J Hum Genet 17: 135-139.