Role of Nurse in Genetics

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Genetic nursing practice is a specialty which needs to be adequately explored. All areas of nursing practice have been impacted by recent advances in genetic knowledge and technology. Nearly all diseases are now recognised to have a genetic component. Its time that nursing has to be seen in relation to genetic perspective so as to play a more meaningful role in future.

Advances in Genetics

Genetics services have been primarily associated with prenatal genetic counselling, identification of paediatric disorders associated with birth defects and dysmorphology, and in some cases rare adult onset single gene disorders. Recent genetic and technological advances are helping us better understand how genetic changes impact human variation as well as the development of cancer, Alzheimer’s, diabetes and other multifactorial diseases that are prevalent in adults. The research from the Human Genome Project is providing a new and better understanding of the genetic contribution to disease, the development of targeted drug therapy and the genetic tests that identify those who may have or be at risk for genetic diseases.

Nurses now provide education to patients about hereditary risk for developing disease, counsel about the benefits and risks associated with genetic testing, and manage disease risk based on genetic information. The recent development of commercial testing for susceptibility genes (such as the predisposition genes for breast ovarian cancer syndrome and colon cancer) have had a great impact on the role of nursing in the identification and management of individuals at risk for developing many diseases.

The nurses’ role today in managing genetic information and caring for individuals and families at risk for or diagnosed with genetic diseases or conditions is much broader.

The influence of recent genetic advances on nursing practice is especially evident in oncology. Oncology nurses practicing in cancer prevention and control apply genetic principles to their clinical practice daily. For example, if a woman is concerned about her breast cancer risk and wants to know whether she should undergo genetic testing for its susceptibility, a nurse could provide genetic education about breast cancer susceptibility genes, take a detailed family history and construct a pedigree, assess the woman’s hereditary and non-hereditary cancer risk factors, take detailed family histories and construct pedigrees, identify individuals and families at risk for hereditary cancer syndromes, make recommendations for cancer risk reduction, surveillance, and management, and when appropriate, counsel and educate about the risks and benefits of genetic testing.

Role of nurse in genetics:

- Take detailed family history
- Construct pedigrees
- Assess hereditary and non-hereditary risk factors related to genetic diseases, or diseases with a genetic component
- Provide genetic information to individuals and families
- Interpret genetic tests and laboratory data
- Manage and care for patients and families at risk for or affected by genetic diseases or diseases with a genetic component
- Provide genetic counselling, genetic consultation, and case management for persons with complex genetic health care needs.

For example, if a woman is concerned about her breast cancer risk and wants to know whether she should undergo genetic testing for its susceptibility, a nurse could provide genetic education about breast cancer susceptibility genes, take a detailed family history and construct a pedigree, assess the woman’s hereditary and non-hereditary cancer risk factors, and inform about the risks and benefits of genetic testing.

The genetic nurse could also provide information about the woman’s breast cancer risk compared to the general population and estimate the probability she may carry a mutation in either the BRCA1 or BRCA2 gene, which is associated with a greatly increased risk for both breast and ovarian cancer. Whether or not the woman chose to pursue genetic testing, the genetic nurse could make recommendations for

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breast cancer risk reduction and surveillance as well as refer her to appropriate community resources.

Shickle et al agreed in their study that at present genetics services provided in primary care may be at limited level, but this trend is likely to change in the near future. The role of nurse in genetics should be evaluated as a means of providing genetics specialist outreach support for service delivery and to facilitate education.

Large amount of genetic information is currently available and this can be made use of on a large scale. Genetic changes contribute to most, if not all diseases, hence the scope of application of genetic knowledge in nursing is limitless.

**References**

1. www.geneticnurse.org

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