Strengthening of public policies in order to implement familial and hereditary cancer care and transform cancer epidemiology in Mexico: “raising awareness and winning hearts”

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The 21st century has enabled us venturing into an authentic paradigm of modern medicine, molecular medicine, with new diagnoses and new therapies, which has made for medical practice to shift towards a kind of medicine that has allowed the generation of a new, innovative health culture that produces evidences and contributes to the best decision-making. In the past few decades, important changes have been observed in the country with regard to habits and social, cultural and working costumes, and even in environmental issues. To these changes, a demographic transition period is added, which leads to population progressive aging and to a dominance of non-transmittable, chronic-degenerative conditions, including cancer.

In Mexico, as in the rest of the world, cancer is an enormous public health problem and one of the leading causes of death in men and women.

Medicine has with no doubt generated highly important advances that have led to significant changes of approach, looking for the prevention line as a key element for diseases to be avoided, with effective access to the national health system, an increase in quality care and a highly preventative approach. Cancer is now visualized as a group of complex diseases that affect the population, which is of genetic and environmental origin, and that is characterized by incontrollable growth and spread of abnormal cells and a decrease in apoptosis. The cause of cancer is related to intrinsic or genetic (hereditary mutations, immune conditions, hormonal environment and causal mutations) or extrinsic (exposure to chemical, physical or biological agents) factors. These causative factors can act alone or combined to initiate the formation of tumors. On the other hand, knowledge on the human genome has enabled associating certain gene mutations with predisposition to develop malignant tumors. This way, the familial and/or hereditary occurrence of certain tumors is at least partially explained. This group of people who are carriers of particular mutations by the germinial route constitutes a high-risk population that has to be addressed differently, and their care has to be enhanced by focusing it on prevention and early detection.

Sporadic cancer, which corresponds 70-80% of neoplasms, is multifactorial; in 15-20% of familial cancers there is a moderate genetic component, and hereditary cancer accounts for 5-10%1.

The main purpose of this communication is to generate an access route to this great problem concerning the at-risk population; for this, this population has to be identified and provided genetic counselling, depending on the case, in order to determine the risks and adequate management measures, as well as to advice on the necessary tests to establish a genetic diagnosis and opportune management and treatment.

National health policy focuses on cancer care with a gender perspective and bringing to light the most complex health problems that affect the population, targeting on risk factors, with comprehensive care as a
lifeline focused on social determinants, with cultural pertinence and effective multi-sectoral coordination.

In spite of some efforts, Mexico is still lagging behind at the international level with regard to familial and inherited cancer, which might represent a focus of approach that, should it be addressed, might change morbidity and mortality, and modify epidemiology in the country. Even though there are standards and programs within the national health system, it has not been possible to apply them in adequate policies for familial/hereditary cancer opportune detection, and we are therefore dealing with a poorly addressed problem, since little is being done to study neoplasms with a hereditary-genetic focus, which turns us into a country with only few centers correctly addressing this problem.

It should be pointed out that there is a need to develop clinical algorithms for diagnosis in national health system institutions, and to install points of care, as well as to apply tests, which might improve medical treatments, with a marked increase in the rates of cure, survival and family-focused prevention.

An example of these conditions is breast-ovarian cancer. In Mexico, the epidemiological situation of breast-ovarian cancer has not substantially changed in the past few years, with a registry of 15% for breast cancer and 6% for ovarian cancer among all neoplasms, and being at first place in the incidence of malignant neoplasms in Mexican women. The most affected age group is the 40-59-year group, which is where it is commonly detected; however, 28.7 new cases are recorded for every 100,000 20-year old or older women, and the risk of hereditary cancer is higher among women younger than 40 years. In 2014, there was a mortality rate recorded of 17.6, which corresponded to 5,974 annual deaths: 17.6 deaths for every 100,000 20-year old or older women.

In the National Institute of Statistics and Geography (INEGI – Instituto Nacional de Estadística y Geografía) 2015 Inter-census Survey, the existence of 61.5 million women in Mexico was reported; if an estimated 12.32% of women will develop cancer sometime in their lifetimes (7,573,673 women), and out of these, 10% correspond to hereditary cancer syndromes, 757,367 women in Mexico are at risk of having this type of cancer.

Hereditary breast and ovarian cancer syndrome is transmitted in an autosomal dominant form; i.e., affected patients have 50% possibility to pass the genetic alteration to their offspring, and the risk for ovarian cancer as well. The importance of this hereditary pattern should be pointed out, given the behavior of the BRCA1 and BRCA2 genes, with incomplete penetrance, where people can carry the mutation and not manifest the neoplasm.

There is information in the NOM-041-SSA-2011 standard for prevention, diagnosis, treatment, control and epidemiological surveillance in women (referring those people who meet clinical criteria for hereditary cancer to genetic counselling is recommended), as well as in the 2013-2018 Program of Specific Action for the Prevention and Control of Female Cancer.

By applying the cancer prevention existing guidelines and programs, and by strengthening the following points, we will be able to accelerate the reduction of hereditary cancer mortality and morbidity, especially of breast-ovarian cancer:

- Reduce morbidity and mortality in individuals with genetic predisposition to suffer from hereditary cancer by means of their identification before cancer develops, providing them with a complete prevention, early detection and treatment program.
- Creation of guidelines focused on the care of familial and hereditary cancer by the Ministry of Health in a comprehensive program of detection, management, counselling and follow-up of familial/hereditary cancer in Mexico.
- That any Mexican suspicious of having or being at risk of suffering from hereditary/familial cancer has access to the best diagnosis and to normalized and equitable care.
- Introduce genetic testing in those individuals and families with a high probability of being positive.
- Increase health culture in order for the population to know and resort to orientation and counselling, and provide the population sound information.
- Make, in all cases of cancer, a family history and/or genetic testing.
- Increase training in the oncogenetics area by physicians specialized in medical genetics in order to cover the needs of the places for counselling and care of the population, both in terms of counselling and indication and interpretation of tests.
- Training and acquisition of competences in cancer genetics basic education by the health personnel.
- Generate sites for care and medical and/or surgical therapeutic decision-making in positive cases in order to reduce the occurrence of cancer.
- Create an extension in the currently approved National Registry of Cancer Program in order to allow for the impact of actions on the obtained survival and quality of life to be analyzed, thus enabling the investigation.
of new screening modalities and the record of familial/hereditary cancer behavior in Mexico.

In view of the above, it is important to describe hereditary cancer current situation in Mexico, analyze its clinical characteristics, generate epidemiological measurements (proportions, rates, ratios and frequency measurements), inform on the recurrence of breast cancer and other cancers, on patient survival and on the types of genetic alterations, and adapt the clinical criteria of patient selection for genetic trials to the clinical characteristics in Mexico.

Approximately between 5 and 10% of all diagnosed cancers are of the hereditary type.

It is necessary to decrease the lags in this subject with regard to international management.

“I don’t know what is more frightening in counselling, whether diagnostic accuracy or not being able to provide adequate help and support on time”.

References