



Cancer surgery on the global stage: Much to be done

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The global cancer burden continues to rise at an alarming pace^{1,2}. According to the World Health Organization (WHO) data, cancer is the first or second leading cause of death in 91 of 172 countries for patients < 70 years of age and is the third or fourth leading cause of death in an additional 22 countries^{1,2}. It is estimated that there were 18.1 million new cancer cases and 9.6 cancer-related deaths in 2018^{1,2}. Estimated one-in-five men and one-in-six women will develop cancer during their lifetime, of which nearly one-in-eight men and one-in-eleven women will succumb to their cancer-related diagnosis^{1,2}. The five most common cancers by incidence include lung, breast, colorectal, prostate, and stomach, whereas lung, colorectal, stomach, liver, and breast cancers account most of the cancer-related deaths^{1,2}.

Another glaring statistic is the rising disparity in the global cancer burden based on geographic distribution and socioeconomic status. Not only many emerging economies are witnessing a rising cancer burden but also a shift from infection or poverty-related cancers to cancers resembling the profile of high-income countries. Asia and Africa combined account for nearly 54% of all the new cancer cases and 67% of all cancer-related deaths worldwide^{1,2}.

The care of a cancer patient requires a multidisciplinary approach. This consists of many specialists including but not limited to medical, surgical, and radiation

oncologists; pain management; and hospice and palliative care. While all disciplines are vital, surgical care for patients diagnosed with solid tumors is particularly important. Surgical intervention is essential across the entire spectrum of cancer care ranging from diagnostic, therapeutic, and palliative procedures. It is noted that nearly 80% of all solid tumors are suitable for surgical intervention, and in many of these patients, it is probably the only intervention that can accomplish its stated goals and provide hope for durable comfort or cure.

While there is no doubt about the role of surgery, what is in doubt is whether we will be able to deliver surgical care to all patients regardless of their geographic location or socioeconomic status. Sullivan *et al.* noted that by the year 2030, there will be a need for an additional 45 million surgical procedures although only 25% of these patients will have equitable access to safe, high quality, and timely surgery³. The authors also noted that by the year 2030, 17.3 million of the 21.6 million cancer patients will need surgery, of which 10 million will be domiciled in low-to-middle-income countries. Many patients in the low-to-middle income countries do not have access to timely and safe cancer surgery. This huge disparity in access to safe cancer surgery is likely to get worse with the brunt of the rising cancer burden disproportionately affecting the low-to-middle income countries.

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Date of reception: 12-07-2019

Date of acceptance: 22-07-2019

DOI: 10.24875/j.gamo.M19000181

Available online: 05-08-2019

Gac Mex Oncol. 2018;18:118-120

www.gamo-smeo.com

There are several barriers to the delivery of timely, safe, and effective cancer surgery. Are *et al.* from the Global Forum of Cancer Surgeons (GFCS) conducted a survey of surgical oncology leaders from across the world to obtain perspectives on the various barriers to safe cancer surgery⁴. The GFCS was formed under the auspices of the Society of Surgical Oncology in 2017 and consists of several prominent surgical oncology societies from across the world^{5,6}. The GFCS is a steady voice for cancer surgeons with an increasing number of surgical oncology societies joining the forum.

The value of GFCS is further highlighted by the fact that the representative countries account for the majority of the global cancer burden, 77.5% and 75.7% of the new cancer cases and cancer-related mortality, respectively.

The surgical oncology leaders from the GFCS were surveyed to identify barriers to safe surgery for cancer patients in the domains of education, clinical care, research, and workforce. Multiple barriers were identified in all the domains. The barriers to education consisted of: inadequate training infrastructure, lack of standardization in content and length, and limited number or complete absence of training positions in some low-to-middle-income countries. The barriers to clinical care were noted to be inadequate resources, absence of guidelines that precluded consistency in care and inequitable distribution of cancer surgeons between urban versus rural locations. The noted barriers to research included inadequate resources, lack of training in research methodology, insufficient research personnel, and inability to publish or present their research findings. In the domain of workforce, the highlighted barriers consisted of inadequate number of well-trained surgeons, large volumes of patients, insufficient pay, fragmentation of health care, and a poor work environment.

It is clear from the study by the GFCS that there are multiple barriers and surmounting these will require a multipronged approach from multiple entities. Global bodies such as the Union for International Cancer Control (UICC)⁷ and the WHO⁸ are actively involved in several efforts and initiatives to address the rising cancer burden, reduce inequity, and ensure adequate care to all cancer patients. The main missions of the UICC consist of “convening” (convening the global cancer control community through our keystone events), “capacity building” (developing capacity-building initiatives to strengthen the cancer community), and “advocacy” (promoting cancer in the global and development agendas). The key mission of the WHO’s efforts in cancer

control is to promote national cancer control policies, plans, and programs that are synchronized with strategies for noncommunicable diseases and other related health concerns. The WHO also focuses on setting standards and norms for cancer control by emphasizing prevention, early diagnosis, and optimizing treatment strategies. The Lancet Oncology Commission on Global Cancer surgery published its seminal document in 2015 that served as a paradigm-shifting catalyst in highlighting the need for cancer surgery and the gross inadequacies for the same.

While all these efforts are laudable, efforts emanating from surgical oncology societies can be just as effective and are warranted. The surgical oncology leaders and their respective societies have the advantage of proximity to the cancer patient which contributes to their ability to develop more focused solutions with a particular emphasis on the surgical aspects. The global curriculum in surgical oncology⁹ published by the Society of Surgical Oncology and the European Society of Surgical Oncology can serve as a fine example of the focused efforts from the surgical oncology societies. This modular educational curriculum encompasses several core domains that extend across cognitive, psychomotor, affective, and team-based training combined with the attainment of some basic core competencies. This curriculum can be tailored by countries to suit their local environment and contribute to streamlining the educational standards. This eventually can help in building a sufficient workforce of adequately trained cancer surgeons.

Similarly, the global curriculum in research literacy¹⁰ for the surgical oncologist published by the Society of Surgical Oncology and the European Society of Surgical Oncology is another step in the direction of surgical societies and leaders addressing surgical issues. Are *et al.* noted that there is a correlation between cancer-related research and cancer-related mortality¹¹. After surveying the data for 142 countries, they noted significant variations in the volume of research based on geographic location but more importantly identified an inverse relationship between the level of research activity and cancer-specific mortality. This flexible research curriculum can serve as a foundation to stimulate research activity in low-to-middle income countries, thereby improving the delivery and quality of surgical care for cancer patients.

In addition to the above, leading surgical oncology societies such as the Society of Surgical Oncology¹² have been instrumental in promoting and advocating for safe and equitable access to cancer surgery. The Society

of Surgical Oncology has been instrumental in starting many initiatives that can improve cancer surgery globally. Some of these initiatives include the International Career Development Exchange program that provides the opportunity and funding for cancer surgeons from other countries to visit the United States of America. The experience and exposure have been noted to be invaluable to the participants upon return to their home country.

The Society of Surgical Oncology has also been very instrumental in promoting several other activities in collaboration with other partner societies across the world. The inaugural Best of Society of Surgical Oncology (SSO) was held in Mexico under the auspices of the Mexican Oncology Society and the leadership of Dr. Hector Martinez Said in 2010¹³. Since then the Best of SSO has been held continuously not only in Mexico but also in other countries such as India and Egypt.

In summary, the global cancer burden is expected to rise over the next few decades. Although surgery can play a vital role in the care of these patients, there are major disparities in access to safe and timely surgery. There are multiple barriers that contribute to these disparities. Multiple global and national entities have been instrumental in initiating efforts to address these disparities to surgical care for cancer patients globally. It is hoped that these concerted efforts will go a long way to alleviate these disparities and contribute to the

equitable access to safe and timely cancer surgery to all patients regardless of their socioeconomic condition or geographic location.

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