Cancer Care for Refugees and Displaced Populations: Middle East Conflicts and Global Natural Disasters

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OVERVIEW

Conflicts and natural disasters can cause major disruptions to people's lives. Media and news agencies usually focus on immediate consequences of these events, including loss of life and injuries, environmental and property destruction, and relief efforts. In this article, we will examine the effects of conflicts (focusing on in the Middle East) and global natural disasters on patients already diagnosed with cancer and on those who are diagnosed with cancer during and in the immediate aftermath of these events. We will review the limited literature, provide situational analysis, and discuss medical relief efforts, governmental readiness, and the role of United Nations agencies and international nongovernmental organizations. We will also discuss treatment of patients with cancer in the context of prolonged displacements and limited resources.

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CONFLICTS, INJURIES, AND POPULATION DISPLACEMENT IN THE MIDDLE EAST

Conflicts that escalate into violence are a major cause of people's displacement from their residences and even their countries, as they may need to search for shelter and safety outside of their home country. Use of modern weaponry also causes massive destruction and inflicts severe human injury. According to the United Nations High Commissioner for Refugees (UNHCR), we are now witnessing the highest levels of human displacement to date. There are approximately 65.6 million refugees and displaced people worldwide.[1] The UNHCR defines refugees and displaced people as those who are forced to leave their homes as a result of conflict, persecution, generalized violence, or human rights violations. Over the last several decades, the international community has faced many refugee crises, during which public health issues, such as infectious diseases and malnutrition, were managed as part of relief efforts. However, NCDs are often not well targeted in such circumstances, and they are not given as much importance as the other diseases during crises management and resolution.[2]

In the Middle East, millions of Palestinians have lived as refugees and displaced persons since the 1948 war and subsequent armed conflicts.[3,4] Hundreds of thousands of Iraqis were displaced during the 2001 invasion of Iraq and the subsequent wars and terrorism that followed. The Syrian conflict, which started in 2011, has caused one of the most devastating human crises; millions of refugees and displaced persons have flowed into neighboring Lebanon, Jordan, Turkey, as well as Europe and the many other countries in the world. The latest conflict in Yemen is another major devastating event, with many Yemeni civilians remaining displaced in their own country. Lebanon has also suffered human displacement because of its own civil war in the 1980s. In addition to direct war-related deaths and injuries, displaced people may have pre-existing diseases, develop new diseases, and require health care, sanitation, infrastructure, and manpower. Lebanon hosts the largest number of Syrians refugees in proportion with its national

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population, 183 per 1,000.[3] Lebanon is also presently the destination of tens of thousands of Iraqis seeking medical care.[5,6]. The American University of Beirut Medical Center has treated those suffering from war casualties, victims of car bombs and terrorist explosions, as well as refugees and displaced people from the wars and conflicts in the Middle East during the past several decades.[5]

Refugees and Displaced People With Cancer in the Middle East

Refugees and displaced people may see their cancer treatment interrupted, or they may develop a new cancer while they are in host countries. They often present with advanced disease and suffer more complications. These patients have poor outcomes because of poor hygiene and living conditions, as well as the limited health education, limited access to care, and limited resources available to them. They are usually unfamiliar with the health system in their asylum countries, and they are not enrolled in screening programs.[2,7] A study done in Turkey, which receives the highest crude number of Syrians refugees, showed that the most common cancer type among refugees was breast cancer, and the majority of patients were diagnosed at an advanced stage.[8] Unlike refugees displaced from conflicts in Africa, where endemic and epidemic infectious diseases and malnutrition are the main health crises, Syrian refugees are more affected with chronic and costly diseases, such as hypertension, diabetes, heart diseases, and cancer.[9] In the aftermath of conflicts, countries may have infrastructures destroyed and manpower displaced, which causes patients with cancer to seek treatment outside of their home countries[6]

PRACTICAL APPLICATIONS

- **Conflicts and natural disasters cause destruction, acute bodily injuries and displacement of people from their own homes. Worldwide, there are tens of millions of refugees and displaced people in their own or host countries. In addition to general medical and surgical problems, they may either have their cancer treatment interrupted or develop new cancers.**
- **Host countries, United Nation organizations, UNHCR, International Red Cross, and various humanitarian organizations bear extensive burdens and alleviate great human sufferings but offer limited coverage for the management of cancer because of limited resources, other more urgent priorities, and high costs.**
- **In addition to increasing budgets for relief organizations and asking that cancer treatment be covered like other NCDs, implementation of resource-stratified guidelines may help provide much needed care for early diagnosis and treatment of cancer in large refugees and displaced people where full resource-intense care is not possible.**
- **Hurricanes, flooding, drought, earthquakes, volcanic eruptions and mass movements represent enormous challenges for both high- and low-income countries that have varied degrees of preparedness. The United Nations adopted the Sendai Framework for Disaster Risk Reduction, which aims at reducing disaster risk, protecting persons, and strengthening the resilience of communities and countries. The Sendai Framework focuses on providing information for patients with cancer and caregivers, ensuring continuity of care, identifying vulnerable patients, including cancer care in rapid response teams, strengthening the resilience of the health care infrastructure, rebuilding back, and seeking international cooperation.**
- **With the growing burden of cancer and mass displacement of populations worldwide, we find a particularly neglected community of cancer patients who struggle to get medical care. Considering the present disorganized and underfunded approach, the global health community must change its perceptions, vision and strategy to tackle this issue. United Nations and nongovernmental organization roles are essential and should be highly supported.**

Cancer in displaced people: statistics from Syria. War in Syria has caused the worst humanitarian crisis of the 21st century, as declared by the UNHCR.[3] It has resulted in the displacement of over 12 million people inside and outside Syria and destruction of large numbers of hospitals, clinics, laboratories, pharmaceutical factories, and infrastructures crucial to oncology care. According to the World Health Organization (WHO), at the end of 2017, 45% of public hospitals were reported damaged, with 15% fully damaged and 30% partially damaged. Forty-nine percent were reported fully functioning, 25% of hospitals were reported partially functioning, and 26% were reported nonfunctioning.[10] Diagnostic imaging modalities and radiation therapy are not available in the majority of medical centers in Syria, making it very hard for the physicians to follow the universal guidelines in diagnosis and treatment.[11] Many physicians and medical personnel have either died or left the country.[2,3] Physicians for Human Rights reported that 15,000 doctors had left the country in 2015.[12]

Patients with cancer cannot get proper treatment, neither inside Syria nor in neighboring host countries. According to WHO's Health Resources and Services Availability Monitoring System, only 23% of functional public hospitals in Syria provided cancer treatment services.[13] Only 46% of patients with cancer in Syria completed radiotherapy treatment without interruption, and 55% of them completed systemic therapy/chemotherapy without interruption.[14] The mean nurse-to-physician ratio is 1.71:1 in 94 surgical hospitals in Syria.[15] This ratio is almost half of the worldwide recommended ratio, which is 3:1 to 4:1, and is much lower than the 5:1 ratio recommended in the Sphere Handbook for minimum standards in disaster responses.[15,16]

International Relief Efforts and Patients With Cancer in the Middle East

Although international agencies and volunteer organizations provide various kinds of needed medical support,[3,5] in many host countries, the expenses of treating patients with cancer are often not covered because they are designated as having too poor of a prognosis and/or treatment is financially too costly.[2,17] Countries that host the highest number of refugees, such as Lebanon and Turkey, lack cancer surveillance programs that track the number of refugees with cancer, which makes it impossible to know how many of these patients are requiring treatment and not receiving it because of limited resources.[7] The UNHCR is facing serious limitations to support those patients and provide them with the treatment they need. This is due to the limited funding for humanitarian emergencies since the beginning of the Syrian crisis. The UNHCR in Lebanon is facing an 83% deficit in funding.[18] Because of the limited resources and the overwhelming needs, the UNHCR selectively funds expensive treatment based on the decision of a UNHCR Exceptional Care Committee, which relies on several criteria to select the cases that most deserve to receive health care coverage. One of these criteria is disease prognosis.[2] For example, out of 511 applicants for expensive cancer treatment in Jordan, the Exceptional Care Committee denied care for more than 50% because of poor prognosis.[2] However, results from a recent survey from The Johns Hopkins Center for Humanitarian Health noted a change of funding for cancer treatment for refugees in Lebanon and Jordan in 2016.[19]

Experience at the American University of Beirut Medical Center. In Lebanon, the Ministry of Public Health reported that in 2016, public hospitals had accumulated a deficit amounting to $15 million since the onset of the Syrian crisis.[20] This indicates that the large influx of refugees and displaced people into a neighboring country may cause a significant negative impact on the health care system and its already-limited resources. A report on the effect of refugees from Syria and Iraq on breast cancer incidence in Lebanon showed a substantial 37.6% increase in breast cancer cases. At the American University of Beirut Medical Center, 41% of patients with breast cancer seen in 2015 were Iraqi and Syrian. The percentage (24%) of Iraqi patients who presented with metastatic breast cancer was higher than the percentage (15%) of the Lebanese patients. In addition, the percentage of Iraqi patients with breast cancer who were screen-detected was only 4% compared with 28% for the Lebanese patients with breast cancer.[6] Advanced disease at presentation has also been noted in studies of refugees from Turkey.[9,21]

The Children's Cancer Center of Lebanon at the American University of Beirut Medical Center, which is affiliated with St. Jude Children's Research Hospital of Memphis, Tennessee, provides treatment of a large number of Syrians refugees and other displaced patients from the region. Since 2013, it has received humanitarian funds for displaced patients and was offered complete modern, unrestricted management for 126 displaced Syrian and Palestinian children with different types of cancer.[22]

Cancer Awareness, Early Detection, and Screening for Refugees and Displaced People

Countries of asylum should keep national cancer registries updated to achieve better cancer surveillance and allow forecasting of crises so that aid from international organizations can be requested beforehand. Public awareness and information about how, where, and when to seek medical attention should be made more available to refugees in asylum countries. This could be achieved by improving communication between the health care system and the refugees through publicity and awareness campaigns. Detecting cancers at early stages would lead to better prognoses and less-costly treatment.[7,17]

Financial Coverage and Resource-Stratified Guidelines for Refugees and Displaced People

One of the main reasons for the failure of supporting refugees with cancer is the misconception that all types of cancers have poor prognoses and that all cancer treatments are expensive. This is not always the case. The United Nations as well as other agencies and host countries may apply resource-stratified guidelines to manage refugees with cancer where required. A patient with a breast cancer may be treated with mastectomy and tamoxifen rather than left untreated. We should apply the principle of doing the best we can with the resources that we have.[17] Patients can be treated with a limited workup, fine-needle aspiration, basic surgery, cheaply priced chemotherapy, and hormonal therapy. As for financing of medical and surgical treatment of refugees and displaced people with cancer and other diseases, the UNHCR and other humanitarian agencies need and should be allocated more money and resources. The United Nations and humanitarian agencies should be enabled to ask governments that fuel wars and conflicts to pay for resulting damages and medical expenses. Allocation of more financial resources to the UNHCR and other humanitarian agencies would help cover more patient treatment.

CANCER CARE IN THE FACE OF DEVASTATION: MEANINGFUL RESPONSE TO NATURAL DISASTERS

Natural disasters, such as hurricanes, flooding, drought, earthquakes, tsunamis, volcanic eruptions, and mass movements, can occur at any time and in any location in the world. The loss of human life and infrastructure caused by natural disasters can exert a heavy toll on the well-being of people and communities, and greatly damage their health, cultural heritage, socioeconomic assets, and ecosystems.[23] Between 1994 and 2013, 6,873 natural disasters were recorded, which claimed a total of 1.35 million lives. An average of 218 million people were affected by natural disasters every year during that timeframe.[24] The most common natural disasters during that period were climate-related events, which accounted of approximately 91% of worldwide disasters. On the other hand, geophysical disasters (e.g., earthquakes and tsunamis) were the most deadly, accounting for 55% of disaster-related deaths.[24]

Natural disasters represent an enormous challenge to the organization, preparedness, and resilience of health care systems. Immediately after natural disasters strike a community, the response is mostly geared toward providing acute care for the injured. However, when critical health care infrastructure is destroyed, access to treatment and medication for people with chronic NCDs, such as cancer, is jeopardized.[25,26] Disasters may also lead to an increase in other health risks, such as infections, which may disproportionately affect frail individuals, such as older adults and patients with treatment-related immune suppression.[27-29]

The Impact of Natural Disasters on Cancer Care

Most of the data regarding the effect of natural disasters on cancer care comes from the aftermath of Hurricane Katrina in the United States in 2005 and from the earthquake and tsunami in Japan in 2011. After the destruction caused by Hurricane Katrina, for instance, New Orleans lost 80% of its hospital capacity and 75% of its safety net clinics.[30] Furthermore, 800,000 people (mostly from underserved populations) were displaced because of flooding and housing damage.[30] Cancer care was directly affected, with discontinuation of oncology services at public hospitals that lasted up to a year.[31,32] Sixty-eight percent of all medications dispensed for hurricane evacuees were for the treatment of NCDs,[33] and, among families living in affected communities, almost 5% of adults reported having a cancer diagnosis.[34] Data from the National Program of Cancer Registries showed that, in the states of Alabama and Louisiana, up to 24,000 individuals with a recent diagnosis of cancer may have been affected or displaced by Katrina.[34] Displaced patients, as well as those living in communities with damaged communication and transportation infrastructure, had difficulties obtaining access to timely care. Among patients with head and neck cancer seen in the New Orleans–Baton Rouge area, for example, those with low availability of transportation, as well as those who perceived a lack of access to oncology care, were more likely to have diagnostic delays.[30] The most frequent barriers encountered by health care providers after Hurricane Katrina were inadequate medical information (e.g., inaccessible medical records) and financial constraints as a result of the high number of uninsured patients seeking care.[35]

The 2011 earthquake and ensuing tsunami and Fukushima Daiichi nuclear reactor meltdown produced one of the biggest disasters in the history of Japan. The region hit by the tsunami lost 10 hospitals, 83 clinics, and 10% of available hospital beds.[36] Furthermore, as a result of the nuclear emergency, over 80,000 people were ordered to evacuate the area, leading to a 20% decrease in the number of available health care providers, who fled to other regions of Japan.[37] An analysis of the mortality statistics in the affected area showed that the risk of death as a result of causes other than trauma significantly increased in the month after the earthquake but returned to normal after 3 months.[36] This increase in mortality was particularly seen among women older than age 85.[38] An increase in cancer-specific mortality was also found in octogenarians during the first month after the disaster, which may be explained by the fact that these patients were more vulnerable and/or unable to evacuate the area.[36] However, it is important to mention that cancer-specific mortality rates stabilized quickly and remained stable in the 5 years after the disaster.[38] Although mortality rates did not change significantly, the diagnosis and treatment of patients in the area may have been affected, as shown by a study demonstrating that 33% of patients with breast cancer treated in the 5 years after the earthquake experienced treatment delays, compared with 19% before the disaster.[37]

Preparing for Natural Disasters

Both Hurricane Katrina and the East Japan earthquake affected high-income countries with resilient health care systems. In Japan specifically, the lessons learned from the 1995 Kobe earthquake led to a coordinated and swift response that was able to successfully stabilize the situation in a short period of time.[28,39] The Japanese Ministry of Health deployed more than 300 disaster medical assistance teams within 24 hours after the 2011 earthquake.[39] Additionally, telecommunications were rapidly restarted, allowing for the transfer of medical records and for rapid dissemination of information regarding needs at the local and regional level using the internet.[39,40]

Unfortunately, most natural disasters occur in low-income countries with vulnerable health care systems, where a coordinated response is less likely to occur because of economic and structural constraints.[24,41] To address these disparities, the United Nations adopted the Sendai Framework for Disaster Risk Reduction (www.unisdr.org/we/coordinate/sendai-framework), which aims to reduce disaster risk, protect persons, and strengthen the resilience of communities and countries.[23] Several of the general guidelines included in the Sendai Framework, as well as some of the lessons learned during past disasters, can be applied to cancer care in both high and low-income countries:

1. **Providing information for patients and caregivers.** Ensuring access to information regarding where to obtain care in case of an emergency can represent a lifeline for patients. ASCO offered resources to patients affected by Hurricanes Harvey, Irma, and Maria in 2017,[42] and the American Cancer Society has developed a series of recommendations for patients with cancer facing natural disasters.[43] These recommendations were translated into Japanese and distributed among evacuees and at health care centers in the aftermath of the 2011 East Japan earthquake.[44] Other novel technologies, such as social media, have also been used to disseminate information and to obtain data and optimize disaster response.[39,45]
2. **Ensuring continuity of care.** One of the main issues faced by Hurricane Katrina evacuees was the lack of information regarding current and past medical history. Ensuring remote access to medical records and providing patients with "grab-and-go" copies of their basic disease-related information (e.g., the ASCO/National Cancer Institute wallet card)[46] is an essential component of disaster preparedness.[47,48]

3. **Identifying vulnerable patients.** Older adults, particularly those who are socially isolated and/or dependent in their activities of daily living, are highly vulnerable after natural disasters.[27-29,39] Mapping systems should be used to identify older adults with cancer, and a specific plan for older patients, including dedicated shelters, should be instituted.[27,29] Patients who need life-supporting interventions, such as hemodialysis, should also be identified and promptly evacuated to areas where these are available.[49] Finally, patients who are in need of palliative care and those who have complications of cancer treatment should have the highest priority. A good example of a system for disaster surveillance is the Institute of Epidemiology, Disease Control, and Research in Bangladesh, which rapidly assesses the functioning of the health system after natural disasters.[50]
4. **Including cancer care in rapid-response teams.** WHO recommends setting up mobile clinics equipped to treat NCDs, training first responders to implement the WHO package of essential NCD interventions, and including essential NCD medicines in emergency health kits.[25,51,52] Among the medications included in WHO's NCD essential list, those used to treat pain (such as morphine and nonsteroidal anti-inflammatory drugs) and those that can treat adverse effects of chemotherapy (such as antiemetics, laxatives, and steroids) can be particularly useful for patients with cancer.[52]
5. **Strengthening the resilience of the health care infrastructure and "building back better."** Hospitals, clinics, and other health care facilities are critical infrastructure, and a coordinated effort must be made to ensure their safety, effectiveness, and operation during and after disasters. Building codes should be strictly followed when health care facilities are planned in areas at risk, and damaged health care infrastructure should be rebuilt following the highest structural standards.[23,25]
6. **International cooperation and global partnership.** Disasters disproportionately affect low-income, vulnerable countries that may not have the necessary resources to launch an effective response, such as treatment of patients with cancer or rebuilding damaged infrastructure.[24,41] International organizations, such as ASCO, could potentially play a role by deploying specialists in oncology or in palliative care to assist patients affected by natural disasters in developing nations.[23]

HEALTH CARE FOR REFUGEES AND DISPLACED PEOPLE: SITUATIONS ANALYSIS IN PARTICULAR COUNTRIES

Cancer represents a very significant social and economic burden of disease in the tens of millions of refugees and displaced people worldwide. The current level of attention and resources directed toward refugee cancer care are highly inadequate. We will highlight this neglect by presenting a brief economic analysis of the burden of cancer in a selected refugee population. We will also discuss the role of the United Nations and nongovernmental organizations. The population investigated is the 4.74M Syrian refugees currently residing in Jordan, Turkey, and Lebanon, and the costs estimated are for the provision of cancer-specific services. The experience of health care for refugees in Lebanon is perhaps the most complex and also the most substandard. Again, there is very limited information directly available on the experience of patients with cancer, but the overall level of accessible (affordable) health services is low. Primary health care is run by nongovernmental organizations and has user fees attached, and, to access secondary or tertiary care, refugees have to be funded by UNHCR on a case by case basis, as the tertiary health system in Lebanon is totally privatized.[53] The result is that often only life-threatening conditions are financed, and the rest is left to the refugee population to arrange. In Turkey, it is difficult to find relevant information. It is possible that this is linked to the fact that the Turkish government is in the lead for the refugee response, and the United Nations agencies are marginalized. However, what is known is that all registered refugees are formally eligible to the same rights of access to health care as Turkish citizens, which means health care is heavily subsidized by the government insurance scheme.[54,55] In Jordan, originally the Jordanian government had provided free health care to all registered refugees—to the same standard as insured Jordanians. However, with the system under immense strain, the government abruptly stopped this support in November 2014. To fill the gap, a hybrid system was put in place, whereby, theoretically, nongovernmental organizations and private donors would fund access to Ministry of Health secondary and tertiary care, and primary care would be covered more directly by nongovernmental organizations. Unfortunately, this policy only applied to registered refugees living inside camps. So the approximately 500,000 registered refugees that were living outside of camps (about 83% of the total) were not eligible for support, and instead had to pay expensive private health care rates. The estimated cost for recurrent cancer-specific service provision for the Syrian refugee population in Jordan, Turkey, and Lebanon was €3.38M, €26.58M, and €17.72M, respectively, making a total cost €47.67M.[55,56]

Cancer Services: Provisions and Neglect

Cancer services have been a severely neglected dimension of refugee health, and the global health community must overhaul its perception, vision, and strategy for tackling this issue. The international and global health communities were still caught on the back foot with the massive increase in refugee numbers and the health needs they presented. Initially, this resulted in a very substantial care-gap for NCD refugee health services, which has only begun to be addressed recently. Much of this recent focus has fallen to combating cardiovascular diseases, hypertension, or diseases with severe and immediate outcomes if treatment is disrupted, such as provision of insulin for type I diabetes or dialysis for kidney disease. However, despite this reprioritization of NCD services, cancer care has received very little attention. Even with the overall NCD category, and despite its substantial burden, cancer represents an acutely neglected dimension of refugee health. Though undoubtedly there are refugees who can access adequate cancer services in particular host-nations, the global picture is disheartening. At the supranational level, the United Nations agencies (WHO, UNHCR) responsible providing leadership for refugee health—which includes identifying priorities and directing the flow of crucial financing—have done little to promote the importance for cancer services.[57-61]

Cancer in Refugees and Displaced People: Increased Global Response to a Growing Burden

With the growing global burden of cancer and the mass displacement of populations across Asia, Africa, and Europe, we find a particularly neglected community of patients with cancer who, uprooted from their homes, struggle to get access to the services and care they need to manage their conditions. The global health community must overhaul its perception, vision, and strategy for tackling cancer care in refugee populations. There is no predictable end in sight for the drivers of current conflicts, and the incidence of cancer is forecast to rise year after year. The United Nations and nongovernmental organization roles are essential and should be highly supported

CONCLUSION

Wars, conflicts and natural disasters can cause major destructions and disruptions for patients already getting treatment for cancer and delays on diagnosis and treatment of displaced people. Patients with cancer are vulnerable to such unexpected circumstances that affect their quality of life, the quality of medical care that they receive, and the available resources and medications that are essential for their treatment. Refugees and displaced people often present with advanced disease. In the Middle East, cancer care for refugees and displaced people is suboptimal because of the limited financial resources and the insufficient national and international support, awareness, education, and access to care. Care of patients with cancer does not fall within high priorities of international relief and humanitarian agencies because of misconceptions that all types of cancers have poor prognosis and that all cancer care is costly. We recommend that patients be treated according to resource-stratified guidelines rather than receive suboptimal or no treatment. Natural disasters and their effect on NCDs, such as cancer, could be avoided by adopting the Sendai Framework for Disaster Risk Reduction by all of the countries that are at risk. This will make the health care systems in these countries more resilient to such unexpected events and will enable them to successfully recover from these disasters in a short period of time with minimal losses. Nongovernmental organizations and international relief organizations play important roles in supporting refugees and displaced people, and they should have allocation of more financial resources.

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