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Geriatric radiotherapy in a war-torn country: Experience from Iraq

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ABSTRACT

Introduction: Cancer prevalence and geriatric patients (GP) are increasing and about half of the patients with cancer will be offered radiotherapy (RT). Addressing GP and their RT needs is an important issue in order to understand this heterogeneous group of patients.
Materials and Methods: A descriptive cross-sectional study, using a convenience sample from Sulaimani city's inhabitants, aged 70-year and more, who were treated with RT at the only city's RT center, Zhianawa Cancer Center (ZCC), in 2015.
Results: 153 patients' charts were reviewed. GP represented 20% of the patients referred to ZCC. Male: Female ratio was 3:1. One third presented with distant metastases, and 46% were treated with curative intent versus 54% with palliative intent. 94% completed the planned sessions of the curative RT vs 90% of the palliative RT. 23% of GP who were referred for RT didn't receive it. 9% got interruptions during RT course. 10% of GP living >40 km away from the treatment center refused treatment. Mean time interval between the date of referral and the date of starting treatment in the palliative setting was 19 days. Only 41% of patients with curative setting had regular follow-up.
Conclusions: Being the 1st study in this regard in a war-torn nation, Iraq, our results demonstrated that GP is a sizable group of ZCC patients and that RT is a valuable modality in GP cancer treatment. "*Age per se*" is not a factor to avoid this modality when there is an indication to use it. Longer distance to reach the center was a challenge in some of our GP. Due to inadequate number of RT machines, GP have to wait long time before getting their RT, even for palliative purposes. Further studies in this field are warranted.

1. Introduction

Cancer is the second most common cause of death after age 65 [1], and most common cancers become more frequent with age. The older patient population with cancer is a heterogeneous group, ranging from competent, active, and fit individuals to those who are frail and cognitively impaired. Older adults with cancer have different needs than younger adults [2]. Radiotherapy (RT) is a well-established treatment in cancer and about half of patients with cancer will be offered RT at some point along the course of their diseases and the role of RT in the treatment of older patients with cancer is on the rise [3].

Compared with developed countries, the population of the Middle East (ME) is relatively young and the percentage of population over age of 65 in the ME and Northern Africa (MENA) is estimated at 4.7% [4]. However, ME population will further age in the near future and life expectancy has steadily increased in the ME [5]. As aging is the main risk factor for cancer, the incidence and prevalence of this disease is increasing among all the populations in ME. Longevity brings with it chronic disease and increased resource utilization, and the ME is currently ill-prepared to handle either. The treatment of an older person needs to be individualized, based on life-expectancy, treatment tolerance, and aggressiveness of the cancer. These developments represent huge challenges to the national health services.

Based on the latest annual report of the Ministry of Health in Iraq in 2016 [6], reported deaths were 140,111 and cancer caused 9.05% of all deaths in Iraq; cancer is the second leading cause of death, just after cerebrovascular diseases at 10.69%. Based on the latest cancer registry in Iraq in 2012, the crude incidence rate of all cancers was 61.69 per 100,000 population (53.31 for males and 70.59 for females). No information about the prevalence of cancer in Iraq is in the official reports by Ministry of Health in Iraq. In 2012, Iraq was estimated to have 34,207,248 in population and among them, 603,090 are 70 years and above (i.e., 1.76%, with distribution of 302,987 males and 300,103 females) [7].

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Iraq, a war-torn country since 1980 (and in particular after 1999 onward), now has many life challenges that have consequences on the nation's development and its civil services. Electricity, wealth, transportation, and curfews, not far from the medical services and supplies, all are examples of affected sectors in this country. In cancer care, as an example, there is shortage of radiotherapy machines, and the current functional units are 22% of the ideal requirement for a population of over 34 million [8].

Sulaimani Governorate is one of the Iraqi governorates in the North-Eastern of the border with Iran (Kurdistan region). Its area is 17,023 sq km (3.9% of Iraq area) and its population about 1,931,561 (around 6% of the total of Iraqi population, as in the estimation in 2012). It is a governorate where gender distribution is almost equivalent while the geographical distribution is more in the urban (70%) than the rural (30%) [9].

The authors of this study try to explore the issue of the geriatric patients (GP) from RT point of view, by addressing this subject in one of the tertiary cancer centers for one year of time.

2. Materials and Methods

After obtaining approval from the ethics and research committee at the University of Sulaimani (UoS), this project was launched. The period of the study was one year duration (12 months from June 2016 through June 2017). It is a descriptive cross-sectional study. Materials were the patients' archives in Zhianawa Cancer Center (ZCC), an accredited teaching center by UoS. ZCC is the only-tertiary RT facility in Sulaimani city. Convenience sample was taken including all GPs aged 70 years and more living in Sulaimani governorate referred to ZCC during the period January 2015 through December 2015. Patients aged 69 years or less or those from other areas of Kurdistan or Iraq were excluded. Of 153 patients' chart reviews done, 91 patients were called and interviewed successfully. A uniform questionnaire was used during the interviews for geriatric assessment by assessing frailty, geriatric syndrome, comorbidities and performance status. Eight major medical conditions were listed to assess comorbidities: 1-Cardiovascular disease and hypertension. 2- Hearing and vision abnormalities. 3-Diabetes mellitus. 4-Anemia. 5-Liver disease. 6-Renal impairment. 7-Neuropathy. 8-Lung disease. Data were collected regarding frailty and its phenotypes (weight loss, decreased mobility, fatigue, osteoporosis, incontinence), those with three of these conditions would be characterized as frail, those with one or two conditions defined as pre-frail and those without any of these symptoms classified as non-frail or robust. Type of radiotherapy used was 3D-RT in most of the cases, in a linear accelerator (LINAC) machines. The fractionations were mostly high dose per fraction (hypo-fractionated) in the palliative settings and conventional dose per fraction in the curative settings. Statistical analysis and data entry was performed using Microsoft Office Excel 2010.

3. Results

Among a total of 762 patients, 153 were GPs referred to ZCC in 2015, and this represented 20% of the whole Sulaimani's patients. Results of our cohort revealed the following: Age range (70–99 years) with a median age of 77 years. Number of patients according to the age group is shown in (Table 1). 75% (115 patients) of geriatric group sampled were males, 25% (38 patients) were females with Male: Female ratio were 3:1.

Cancer stage distribution among GPs is shown in (Fig. 1). Cancer types' distribution among patients with stage IV (distant disease) is shown in (Fig. 2). The most common primary tumor type presented with stage IV was the prostatic carcinoma (28.3%), followed by lung cancer (20.7%).

Table 1
Number of patients according to the age group.

Age range	Number	Percentage
70–80	112	73%
>80	41	27%

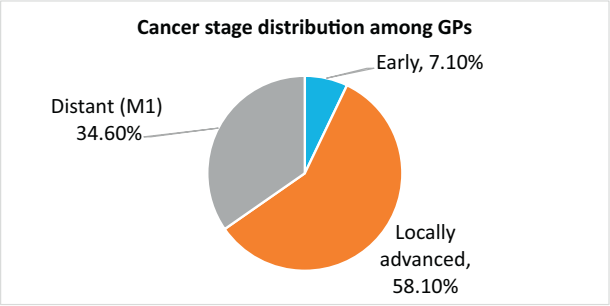

Fig. 1. Cancer stage distribution among older patients with cancer.

Distribution of the types of malignancies among male and female GPs are shown in (Fig. 3) and (Fig. 4) respectively. Lung, head and neck and prostate cancer constituted about 65% among males while breast, skin and lung cancer constituted the main bulk in females.

Distribution of cancer types in the curative setting and the RT fields in the palliative setting are shown in (Fig. 5) and (Fig. 6), respectively. The lung, prostate, skin and laryngeal cancer constituting 64% of GPs sampled who were treated with curative intent, while palliative treatment for bone metastases was the most common RT field site in patients treated with palliative intent.

Rate of patients treated by RT with curative intent is 46% vs. 53% for those who were treated by RT with palliative intent. Distribution according to the age group is shown in (Table 2).

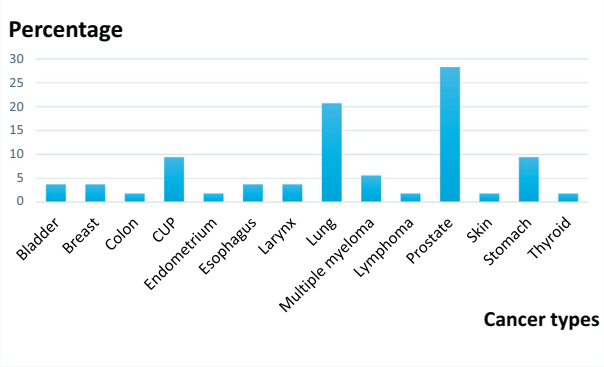

Fig. 2. Cancer types' distribution among patients with stage IV disease (CUP: Cancer of Unknown Primary).

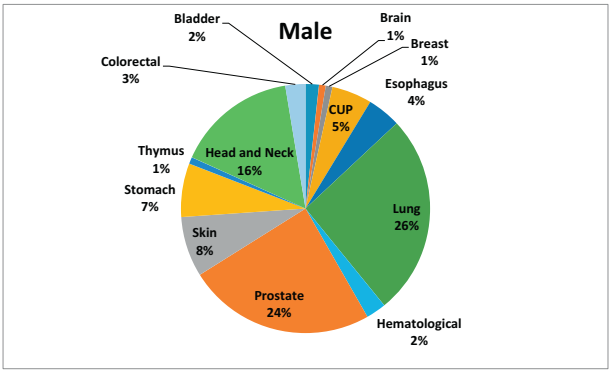

Fig. 3. Cancer distribution in older males.

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